TAILORING THE TACTICAL AIR CONTROL SYSTEM FOR CONTINGENCIES

ROBERT J. BLUNDEN, JR., Lt Col, USAF

WINNER OF THE AIR WAR COLLEGE COMMANDANT'S AWARD

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Tailoring the Tactical Air Control System for Contingencies

Blunden

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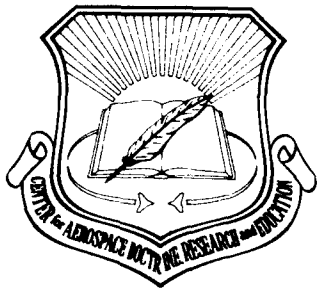

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Tailoring the Tactical Air Control System for Contingencies

by

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WINNER OF THE AIR WAR COLLEGE COMMANDANT'S AWARD

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Contents

Illustrations

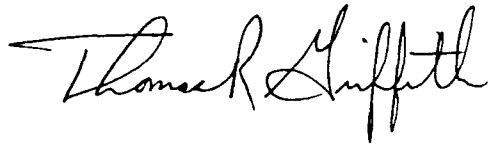
Figure

Table

Foreword

These are dynamic and historic times. The Warsaw Pact has been dissolved, protests are flaring in the streets of Moscow, and the United States and its coalition partners have emerged triumphant from a test with tyranny in the Persian Gulf. This is also a time of change for the US tactical air forces. We no longer enjoy the luxury of large, forward-based forces but instead will become a leaner force increasingly garrisoned in the United States. And while the threat from our main adversary, the Soviet Union, appears to be diminishing, the world is not necessarily a safer place.

Iraq's invasion of Kuwait demonstrated that there remain immediate and dangerous challenges to US security. The outcome of Operation Desert Shield/Desert Storm proved air power to be indispensable in safeguarding our national interests. Yet, if air power is to be successfully employed, it must be properly controlled. That is why we at Tactical Air Command (TAC) commissioned this study. It provides, for the first time, a practical methodology to develop a properly tailored, deployable command and control system a contingency air component commander can employ to prosecute air operations. The paper tackles some of the major problems in the command and control business and proposes solutions we need to explore for implementation. I believe this study is essential reading for those in the command and control system business and should be included in the professional library of any serious practitioner of the art of aerospace warfare.



THOMAS R. GRIFFITH, Brig Gen, USAF
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Lt Col Robert J. Blunden, Jr., was Tactical Air Command's 1990–91 command-sponsored research fellow at the Airpower Research Institute, Center for Aerospace Doctrine, Research, and Education at Air University, Maxwell Air Force Base (AFB), Alabama. His background includes tours as a B-52 crew member, as a military observer with the United Nations in the Middle East, and in intelligence positions at both the national and tactical level. He is currently assigned to Headquarters Twelfth Air Force, Bergstrom AFB, Texas.

Introduction

> Since the close of World War II, the national security focus of the United States and much of the free world has been dominated by the threat posed by the Soviet Union—the only nation with the capability to threaten U.S. national survival. A number of dynamic and rapidly changing factors—from the extraordinary developments in the Soviet Union and Eastern Europe to the spread of sophisticated military capabilities—are creating the potential for a significantly different world environment in the 21st century.
>
> —Donald B. Rice

So begins Secretary of the Air Force Donald B. Rice's white paper, *The Air Force and U.S. National Security: Global Reach—Global Power*, an articulation of how the unique characteristics of the Air Force—speed, range, flexibility, precision, and lethality—can contribute to underwriting US national security in an increasingly dangerous and unstable world.[1] Although deterrence of nuclear war clearly remains the highest national security priority, the less predictable security challenges lower on the operational continuum require attention.[2]

> The combination of continued and emerging threats to national security interests, proliferation of sophisticated weapons, and reduced numbers of overseas US forces in an unstable world [increases] the likelihood that U.S. military forces will be called upon to defend U.S. interests in a lethal environment.[3]

Exploiting the characteristics of air power in this new world environment requires appropriate command and control (C^2), and for most contingency situations C^2 will be provided by Tactical Air Command's tactical air control system (TACS). However, the TACS is a product of a worldview that saw the likely threat as a theater-level war against a large-scale Soviet invasion of Europe or Southwest Asia. The TACS, like other US military elements, was designed to be deployed as part of a large force,[4] the type of deployment seen in Saudi Arabia in Operation Desert Shield/Desert Storm. Yet as Gen John W. Foss, commander of the Army's Training and Doctrine Command, pointed out in a recent interview in *Army Times*, the future of military operations is in force tailoring, "being able to respond with the right package in a relatively short period of time to meet the appropriate threat."[5] Operation Just Cause (the US raid in Panama that ousted General Noriega) was, for General Foss, an excellent example of force tailoring to smaller-scale contingency requirements. "What General Stiner [the joint task force commander] was able to do was package up the [combat] force very quickly and put it together and it had just the right elements that he needed."[6] The one element that Operation Just Cause lacked, however, was an appropriate TACS to run the air effort.[7] This deficiency was in large part due to an inability to rapidly trim the TACS to an acceptable scale.

This paper focuses on tailoring the tactical air control system for contingencies below the theater level. It first provides a primer on the TACS as it exists today within the Tactical Air Command and then describes new systems and concepts in command and control that will be introduced shortly. Second, it looks at

smaller-scale contingency situations in which the TACS might be required to operate and analyzes them in terms of mission types and regional applications. Third, building on these background chapters, the author develops principles for tailoring the TACS for such contingencies and provides scenarios with appropriately customized TACS applications to demonstrate how the principles can be used. Finally, the paper discusses some problems in the area of command and control that need to be addressed to ensure the ability to "respond with the right [TACS] package in a relatively short period of time to meet the appropriate threat."[8]

Notes

1. Secretary of the Air Force Donald B. Rice, *The Air Force and U.S. National Security: Global Reach—Global Power*, white paper (Washington, D.C.: Department of the Air Force, June 1990), 1.

2. Dr Grant Hammond, professor, Air War College, lecture at Maxwell AFB, Ala., 8 November 1990.

3. Ibid.

4. A typical TACS comprises over 1,020 personnel and equipment in excess of 3,382 short tons for bulk/oversized and 627 short tons for outsized. For airlift this package would require 156 C-141s and eight C-5s. This data was provided as attachment 3 to Col Jim L. Ridenour, USAF, director, Command and Control Systems, Headquarters TAC, to the author, letter, subject: Review of Air University Paper, 23 February 1991.

5. Gen John W. Foss, USA, interview in *Army Times*, 5 March 1990, 13. Reprinted in supplement, 3 April 1990.

6. Ibid.

7. Lt Gen Peter T. Kempf, USAF, interview with author at Bergstrom AFB, Tex., 2 August 1990. General Kempf was the joint force air component commander for Just Cause.

8. Foss, 13.

Chapter 1

The Tactical Air Control System

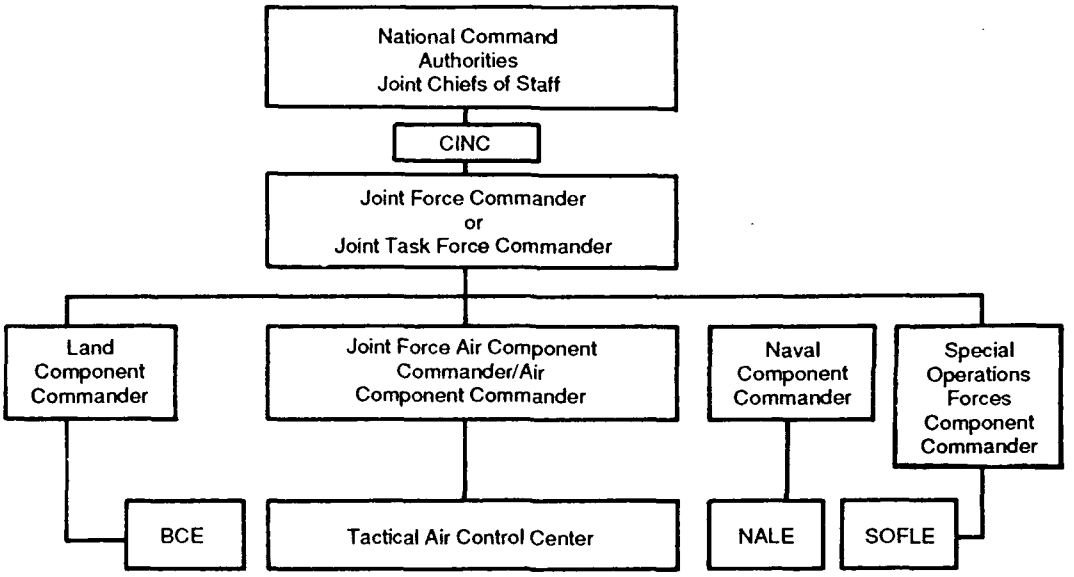
A tactical air control system (TACS) designed for a smaller-scale contingency operation should, in most instances, provide the commander the same measure of control and flexibility as afforded by larger, more complex command and control (C^2) systems. Accordingly, the basic TACS concept provides a starting point for tailoring a TACS to meet the requirements of a contingency short of theater-level war. This chapter is a guide to assist readers who are not familiar with the TACS concept, specifically its essential elements and their interrelationships.

If air power is to be applied effectively, its use must be properly planned, tasked, and controlled. One of the fundamental principles guiding air power employment is "centralized control, decentralized execution." Centralized control provides the joint force commander the means to apply resources in the most efficient manner to meet the priorities of the campaign plan or operation. Decentralized execution affords subordinate commanders the initiative to react to time-sensitive requirements, thus enhancing operations in fluid situations.[1] Design and operation of the tactical air control system should be based on this principle.

When properly employed, the TACS facilitates unity of command. The TACS provides the air component commander/joint force air component commander (ACC/JFACC) with the means to centrally plan, control, and evaluate not only USAF tactical air operations but joint/combined operations as well.[2] The TACS must allow the commander to conduct planning, carry out sortie allocation, accomplish airspace deconfliction, and exercise tasking and control of assigned forces regardless of the type, scope, intensity, or duration of the operation.

Tactical air forces deployed for contingency operations are usually part of a joint task force (JTF) (fig. 1). The JTF commander, with guidance from the National Command Authorities (NCA), sets the priority for operational efforts. Under this joint structure, control of Air Force assets is exercised through the ACC/JFACC (if designated),[3] who is traditionally an Air Force general officer and routinely a numbered air force commander. The JTF commander plans, coordinates, and directs the air effort through the JFACC.[4] The TACS provides the ACC/JFACC the personnel and facilities to direct the air operation. Among the essential elements of the TACS are the tactical air control center, control and reporting center, airborne elements, air support operations center, and tactical air control parties. This chapter discusses these and other elements as it focuses on the

functions, responsibilities, and emerging technical developments that are important to later discussions of tailored tactical air control systems.



Legend:

BCE—battlefield coordination element
NALE—Navy and amphibious liaison element
SOFLE—special operations forces liaison element

Figure 1. Joint Force Structure

Tactical Air Control Center

The tactical air control center (TACC) is the hub for all air operations. The TACC provides the ACC/JFACC and staff the means to make force management possible. It is the senior control element of the tactical air control system and the seat from which the ACC/JFACC runs the air effort. Through its operators, intelligence functions, and attached Army/Navy/Marine and special operations personnel (battlefield coordination element [BCE], Navy and amphibious liaison element [NALE], and special operations forces liaison element [SOFLE], respectively), the TACC has the capability to plan air operations; to direct, monitor, and assess the effectiveness of JFACC assets; to monitor enemy forces; and to supervise subordinate units in air combat operations.[5] It is manned with personnel selected for their tactical air employment expertise and in-depth knowledge of C^2 procedures. Thus the TACC is an amalgamation of headquarters, tactical air control, and joint/combined personnel working together for the greatest synergistic effect.[6]

More specifically, the TACC's charter is to plan and execute the air war to meet the joint task force commander's guidance. To accomplish this

charter, the tactical air control center prepares coordinated, detailed air tasking orders (ATO) for force employment. The TACC then oversees execution of the ATO, adjusting it as required, to meet theater objectives. The TACC is organized into four divisions as shown in figure 2.

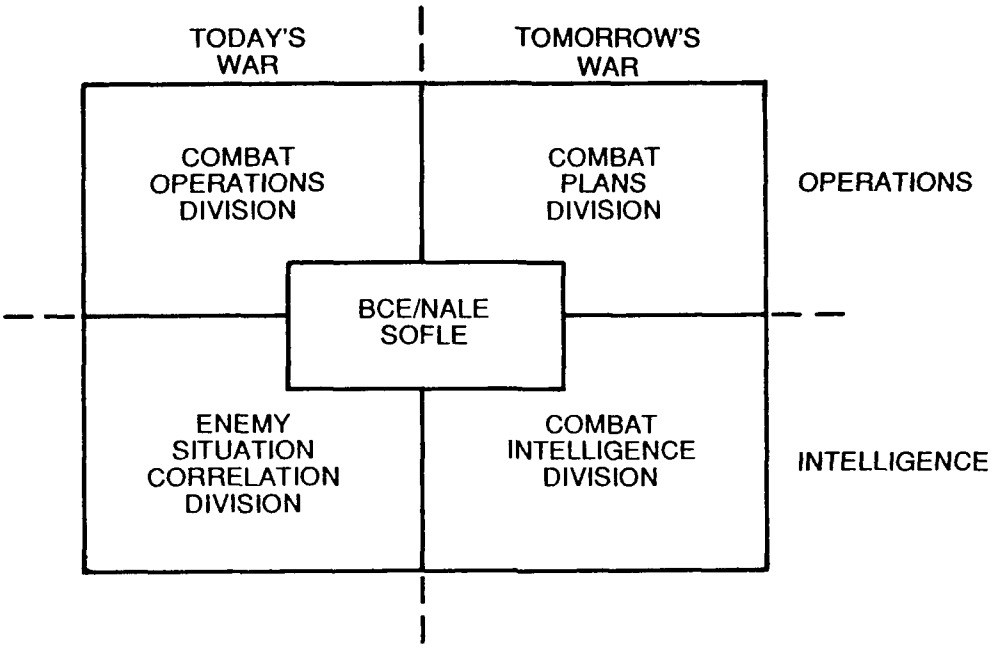


Figure 2. Tactical Air Control Center Divisions

Combat Plans Division

The combat plans division is concerned primarily with "tomorrow's war." The division develops detailed plans for the application of air resources (disseminated to the field in the ATO) based on the air commander's guidance.[7] Combat plans may be subdivided into branches as shown in figure 3, to make maximum use of the specialized skills of assigned personnel.

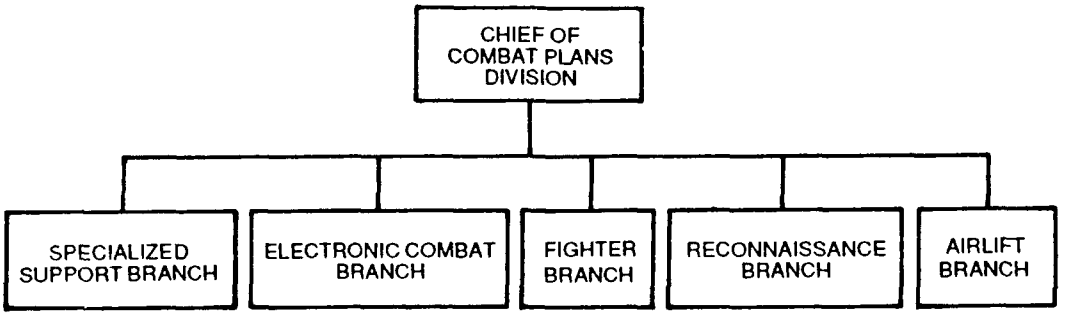


Figure 3. Main Elements of Combat Plans Division

The fighter plans branch develops plans for employment of fighter aircraft in counterair, interdiction, and close-air-support (CAS) missions. This branch works closely with the intelligence targets branch to weaponeer (match appropriate weapons to) recommended targets. The reconnaissance plans branch devises plans for the commitment of available tactical reconnaissance aircraft to meet collection requirements. The specialized support plans branch plans forward air controller (FAC), search and rescue (SAR), and ground and airborne TACS operations (e.g., airborne warning and control system [AWACS], airborne battlefield command and control center [ABCCC]), and airspace management. This branch also plans and coordinates Strategic Air Command missions (air refueling, bomber, and strategic reconnaissance) supporting the ACC/JFACC. The electronic combat plans branch plans suppression of enemy air defenses (SEAD); command, control, and communications countermeasures (C^3CM); and other aspects of electronic warfare. The airlift branch acts as the airlift control center (ALCC) until the ALCC is established. Thereafter, the ALCC coordinates activities with this branch of combat plans.[8]

Combat Intelligence Division

Combat plans is assisted by the combat intelligence division (CID) which performs the functions of collection management, intelligence production, and target intelligence (fig. 4). CID and combat plans are fully integrated to provide the planning focus for the ACC/JFACC.[9]

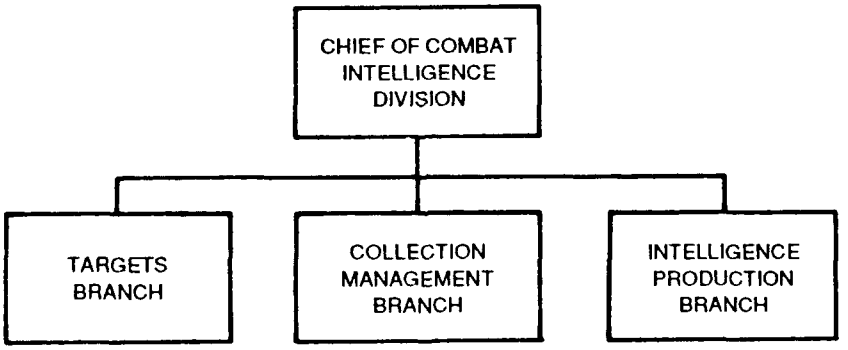


Figure 4. Main Elements of Combat Intelligence Division

The collection management branch of CID prepares a collection plan, processes intelligence requests from other elements of the TACS, presents collections requirements at the daily aerial reconnaissance and surveillance conference (which establishes priorities for the use of theater reconnaissance assets), develops the essential elements of information used to request support from national intelligence agencies, and monitors collection efforts to ensure user needs are met.

The intelligence production branch monitors the enemy to determine capabilities and likely courses of action. It provides threat alerts and assessments to all fielded units. This branch develops and maintains current enemy orders of battle with special emphasis on air, air defense, electronic, and C^3CM capabilities.

The targets branch develops, analyzes, and weaponeers targets and target systems for inclusion in the air tasking order. This branch evaluates the effect of operations against selected targets and recommends changes in conduct of operations that could enhance mission accomplishment. The battle damage assessment cell, a critical part of this branch, analyzes damage reports and compiles imagery annotated by imagery interpreters to redevelop targets based on poststrike reconnaissance.

Combat Operations Division

The combat operations division is primarily concerned with "today's war." It directs current air operations in response to the dynamics of the battlefield. As the primary control agent for the ACC/JFACC, it monitors subordinate TACS elements and supervises their execution of the ATO.[10] Combat operations is organized functionally by duty officers as shown in figure 5.

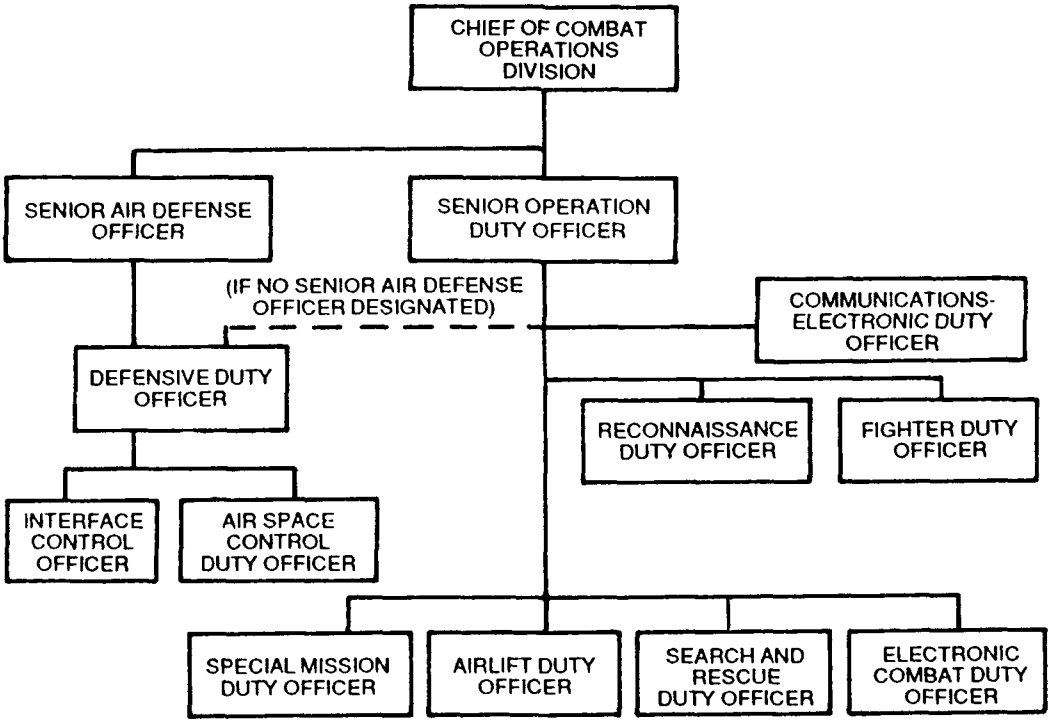


Figure 5. Main Elements of Combat Operations Division

The senior operations duty officer (SODO) monitors the current air situation, mission requirements, and available resources. The SODO supervises ATO execution and oversees adjustments to the ATO to meet contingency requirements.

Fighter duty officers are responsible to the SODO for monitoring all fighter assets to ensure all planned sorties are valid and feasible in light of the current battlefield situation. They coordinate all changes with subordinate TACS elements to ensure tasked ATO missions are accomplished.

Reconnaissance duty officers are responsible to the SODO for managing assigned reconnaissance and surveillance assets. Their procedures are the same as those of their fighter duty counterparts; however, they also monitor reconnaissance assets that have been allocated to the air support operations center (ASOC) and assist in coordinating Army and Air Force requests to make maximum use of reconnaissance assets.

The senior operations duty officer usually delegates to special mission duty officers the monitoring and managing of tasked FAC, support, and special mission aircraft. The special mission duty officers ensure these aircraft are properly employed in light of the current situation.

Airlift duty officers provide coordination between the tactical air control center and the airlift control center. They track the airlift ATO and relay threat warnings and changes in air defense status to the ALCC. They also coordinate airlift support requirements for escort, SEAD, and other missions and assist the SODO with emergency airlift requests.

Search and rescue duty officers maintain close liaison with the joint rescue control center. They coordinate and monitor search, rescue, and recovery operations.

Electronic combat duty officers are responsible for managing committed electronic combat assets to support current requirements. They coordinate with intelligence analysts to nominate targets for electronic attack and electronic combat deception.

The senior air defense officer (SADO) supervises the total air defense effort from the tactical air control center when the air component commander is appointed the area air defense commander. Such designation may occur if air defense operations are expected to be significant during the contingency. The SADO assesses the effect of changes in the current air situation on air operations and ensures that air defense and airspace control efforts complement offensive air operations. The SADO coordinates with other component and allied air defenses to ensure mutual support and unity of effort and to assess the success of tactics or specific weapon systems employed in air defense.

The defensive duty officer (DDO) monitors air defense information and evaluates the effectiveness of TACS radar elements. The DDO recommends changes in air defense posture, control procedures, and radar surveillance

in coordination with the control and reporting centers (CRC). The DDO coordinates reroling (shifting missions) of air defense and offensive sorties and recommends repositioning of ground and airborne radar elements.

Interface control officers manage the TACC's message processing center when it is deployed. They monitor the critical data-link nets to ensure transfer of air defense information.

Airspace control duty officers monitor overall flight activity to ensure that airspace control is compatible with the current contingency situation. They also coordinate airspace requirements with all users.[11]

Maintaining critical communications is the responsibility of the communications-electronics duty officer (CEDO). The CEDO coordinates with other headquarters and TACS elements to ensure secure communications are available for the combat operations division.[12]

Enemy Situation Correlation Division

The combat operations division receives the intelligence support required to execute the ATO from the enemy situation correlation division (ENSCD) (fig. 6). The ENSCD provides combat intelligence pertinent to current operations including enemy order-of-battle changes and targets for immediate destruction. In addition, the ENSCD monitors enemy activities and provides indications and warnings of attack to the entire TACS.[13]

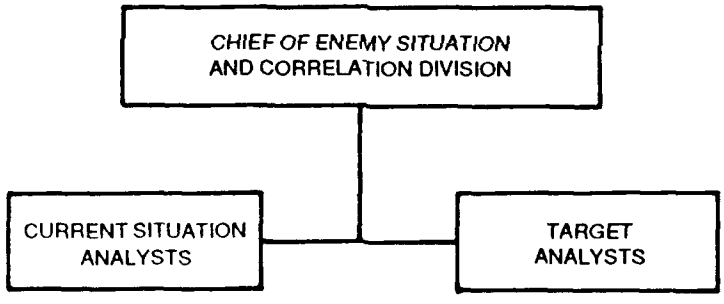


Figure 6. Main Elements of Enemy Situation Correlation Division

Current situation analysts monitor the immediate enemy situation in as close to real time as possible to provide the current threat picture to combat operations. These analysts are responsible for issuing warnings of immediate attack to the TACS. They also identify changes in enemy activity and force dispositions and potential targets for the ENSCD target analysts.

Target analysts in the ENSCD work closely with fighter and reconnaissance duty officers and recommend lucrative targets for reconnaissance or immediate attack based on the unfolding battlefield situation. They also recommend ordnance loads for alert aircraft appropriate for the day's weather, enemy defenses, and delivery tactics.

Other Subelements

To support the air effort, various liaison and support personnel are deployed with the tactical air control center. They are integral to control of air power in a contingency.

Special Intelligence Support. Specialized intelligence support is provided by Electronic Security Command's Direct Support Unit. It is deployed with the TACC for communications intelligence and electronic combat support. In addition, the tactical electronic intelligence processor provides electronic intelligence support.[14]

Battlefield Coordination Element. The four main divisions of the TACC are supported by the BCE. The BCE is composed of US Army personnel assigned to and integrated within the divisions to monitor and interpret the land battle for the ACC/JFACC. In addition, the battlefield coordination element keeps the ACC/JFACC informed of the land component commander's maneuver plans and requirements for air support. All battlefield air interdiction (BAI) targets and planned close air support are coordinated through the BCE.[15]

Naval and Amphibious Liaison Element. The NALE is located at the tactical air control center and interprets the naval and amphibious situation for the ACC/JFACC. Like the BCE, the NALE is integral to TACC operations and serves to coordinate joint air activities.[16]

Special Operations Forces Liaison Element. The SOFLE is also integral to TACC operations. It facilitates tasking, coordination, and deconfliction of special operations activities.[17]

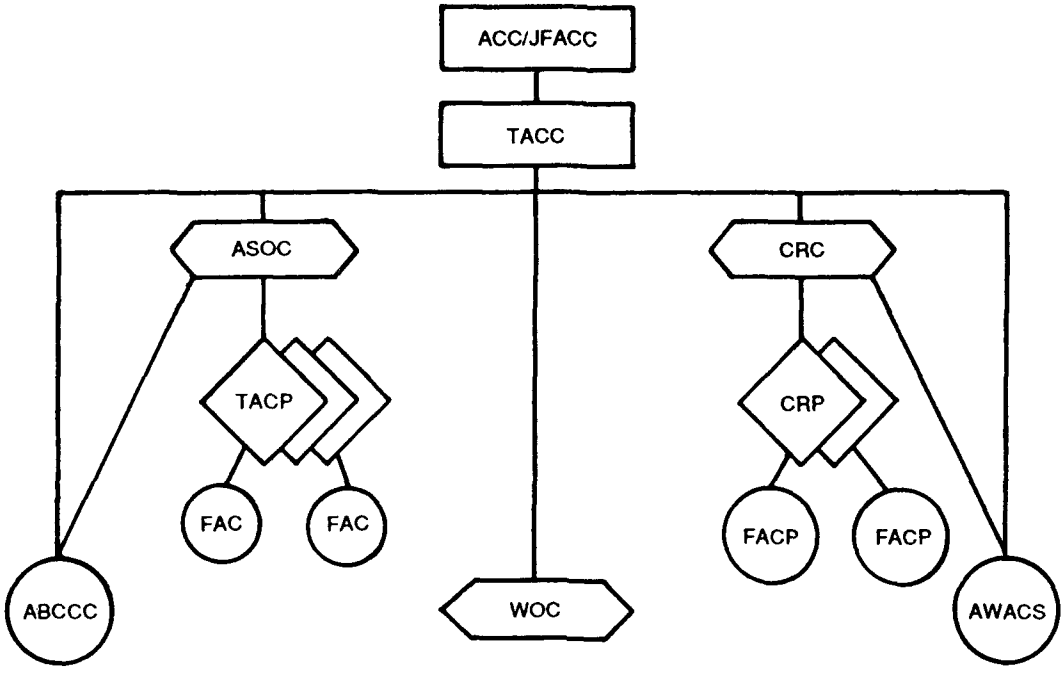
Liaison Personnel. In addition to the sister-service representatives, liaison personnel from national agencies and allied forces are part of the TACC (when applicable) to facilitate air operations.[18] (In Operation Desert Storm coalition partners were integral to the targeting and combat operations planning staff.) Thus the TACC may be a combined as well as a joint facility.

Alternate Tactical Air Control Center. If a contingency involves a threat capable of destroying the tactical air control center or of seriously impeding its operations, the ACC/JFACC designates appropriate TACS elements to assume TACC responsibilities. When established, the alternate TACC is manned to perform functions similar to the primary TACC.[19]

Required Support. The TACC is deployed with support personnel to maintain and manage its automated systems. Other staff functions likely to be deployed include weather, security, and other such services.[20]

Although, as this brief description has indicated, the tactical air control center is the controlling hub of the TACS, the TACC director delegates the functions of air battle management and battlefield management to subordinate elements of the TACS (fig. 7). Air battle management (e.g., airspace control and air defense) is normally assigned to the control and reporting

center. Battlefield management (e.g., immediate close air support and reconnaissance) is normally delegated to the air support operations center.[21]



Legend:

ACC—air component commander
JFACC—joint force air component commander
ASOC—air support operations center
TACP—tactical air control party
FAC—forward air controller
ABCCC—airborne battlefield command and control center
WOC—wing operations center
CRC—control and reporting center
CRP—control and reporting post
FACP—forward air control post
AWACS—airborne warning and control system

Figure 7. Tactical Air Control System

Control and Reporting Center

The CRC is the primary element of the tactical air control system tasked to oversee air defense and airspace management. Within a designated area of responsibility, the CRC directs region or sector air defense. It relays, as directed by the tactical air control center, mission changes to airborne aircraft and coordinates control of missions with other TACS elements. The

CRC supervises subordinate radar elements, provides warnings of hostile aircraft activity, and implements procedures to ensure that aerial and ground-based air defense forces are employed in a mutually supporting manner. It establishes liaison with component and allied reporting elements to exchange airspace and air defense data and provides the air picture to the TACC.[22]

Control and Reporting Post

The control and reporting post (CRP) provides radar air surveillance and control within an assigned sector. It is subordinate to the control and reporting center, but has similar capabilities and can thus assume CRC functions when directed by the TACC or CRC. One or more CRPs can be deployed within a region depending on battlefield characteristics and the anticipated intensity of air operations.[23]

Forward Air Control Post

The forward air control post (FACP) is a highly mobile radar element subordinate to the CRC or CRP. Because it is designed for mobility, the FACP can be moved to forward areas of the battlefield to control air operations, provide increased warning of hostile activity, and fill gaps in radar coverage. It is equipped with mobile radar, operations, maintenance, and communications gear.[24]

Airborne Elements

The airborne elements of the tactical air control system (AETACS) make the TACS responsive to worldwide contingency operations. Airborne elements currently include airborne command element (ACE) teams, AWACS, and ABCCC.

Airborne Command Element

ACE teams provide component-commander representation to the AWACS and ABCCC to increase AETACS effectiveness. The ACE "provides theater unique expertise of resources, C^2, logistics, communications, reconstitution, and the ATO or battle plan."[25] An ACE may include the ACC/JFACC or a senior officer (usually an O-6 or higher) to whom control of the air battle may be delegated. The senior ACE member is the mission director. When tasked, the mission director conducts operations and coordinates with joint/allied forces. Under the mission director are duty officers who are the members of the ACE team responsible for detailed monitoring of the mission. They also oversee such specialized functions as intelligence, airlift, and electronic combat.[26]

Airborne Warning and Control System

The AWACS provides detection, warning, and control in support of operations. Because of its rapid-response capability, the AWACS can provide interim radar surveillance as well as control and battle management before surface TACS elements arrive. Once the TACS is established, the AWACS can extend radar coverage below and beyond the coverage of ground-based elements, or it can fill gaps caused by loss or degradation of ground-based elements. If the primary or alternate tactical air control center is inoperative, the AWACS can assume battle management of air operations. When directed by the TACC, the AWACS can function as a control and reporting post or control and reporting center.[27]

Airborne Battlefield Command and Control Center

The ABCCC can be configured to perform a variety of command and control functions. As with the AWACS, the rapid deployment capability of the ABCCC allows it to precede the arrival of other elements of the TACS. Thus it can serve as a forward extension or interim TACC combat operations division. In this role, the ABCCC and its airborne command element team execute the air tasking order for the ACC/JFACC, coordinating with the AWACS (if deployed) to integrate the air effort. In addition, before (or in lieu of) air support operations center deployment, the ABCCC can function as an airborne ASOC to direct air support to ground forces.[28]

Upon arrival of the TACC and ASOC, the ABCCC relays communications between these elements and aircraft operating beyond the communications range of the ground-based TACS. The ABCCC stays abreast of the current battlefield situation to assure continuity of command and control in case the TACC or ASOC is disabled.[29]

Air Support Operations Center

The air support operations center is subordinate to the TACC and directs immediate CAS and reconnaissance assets requested by ground maneuver units. The ASOC is collocated with the senior Army operational battlefield tactical operations center which is usually located at the corps level. (Thus, in a multicorps fight, more than one ASOC would be fielded.) The mission of the ASOC is to facilitate requests from ground units for close air support, airlift, and reconnaissance. The ASOC manages allocated immediate CAS and reconnaissance sorties and coordinates with the TACC for diversion of planned BAI/CAS missions. The ASOC advises the TACC of Army air support requirements and requests additional resources when the close battle exceeds allocation. Because tactical air support of the Army depends heavily upon communications, the ASOC can talk with Air Force and Army assets through a variety of communication nets. The ASOC establishes and maintains the Air Force Air Request Net between itself and subordinate

tactical air control parties to service immediate air support requests from ground units. The ASOC coordinates via the TACC Command and Control Net.[30]

Tactical Air Control Party

The tactical air control party (TACP) is subordinate to the air support operations center and is designed to assist the division/battalion commander with requests for tactical air support. The TACP advises the ground commander on the capabilities of air assets and assists with the planning of CAS and joint suppression of enemy air defense sorties. It operates the Tactical Air Direction Net through which it provides terminal attack control of tactical aircraft. The TACP "provide[s] and is the focal point for detailed integration of CAS with the fire and maneuver of ground forces."[31]

Airborne Forward Air Controller

Airborne forward air controllers (AFAC) are airborne extensions of the tactical air control party and, like TACPs, are controlled by the air support operations center. Unlike the TACPs, AFACs are tasked by the tactical air control center. They increase flexibility in the final stages of execution of tactical air support by coordinating air assets and, when feasible, by controlling attacks.[32]

Other Elements

Other TACS elements handle specialized duties in controlling air operations. These elements range in scope from the airlift control center, which controls all theater airlift, to the wing operations center (WOC), which owns the fighting resources.

Airlift Control Center

The ALCC is usually positioned in proximity to the TACC. It is the seat of the commander, airlift forces (COMALF), through whom the ACC/JFACC exercises command and control of assigned and attached intratheater airlift. COMALF also monitors and coordinates strategic airlift into the ACC/JFACC's area of responsibility. The ALCC is subordinate to the TACC for intratheater airlift.[33]

Airlift Control Element. The airlift control element (ALCE) is a TACS element subordinate to the airlift control center. It maintains control and support of airlift aircraft to include terminal movement, loading and offloading, and aeromedical evacuation. The size and makeup of the ALCE vary depending upon anticipated contingency requirements.[34]

Combat Control Team. The combat control team consists of jump-qualified Air Force personnel trained to identify and mark drop, landing, and extraction zones. It is under the control of the ALCC.[35]

Wing Operations Center

The wing operations center is the C^2 facility through which a wing commander directs the operation of assigned assets. The WOC communicates with the TACC, CRC, CRP, and ASOC in execution of the air tasking order.[36]

Future Developments

The United States places great importance on having the technological edge in any conflict. The TACS reflects this emphasis. Upgrades of equipment and changes to organization are giving the TACS increased flexibility and deployability. This section examines some new TACS developments that should be significant in the near future.

Modular Tactical Air Control Center

The AN/TSQ-165 Modular Tactical Air Control Center (MTACC) consists of new expandable, hard-walled, 3:1 shelters and equipment including minicomputers, workstations, fiber-optic local area networking, uninterruptible power supplies, and voice communications subsystems. Under the Contingency TACS Automated Planning System (CTAPS) program, MTACC is replacing the existing Vietnam-era "bubble" and will house the deployed TACC. Under the MTACC concept, the number of shelters can be varied to meet contingency requirements. A fully deployed TACC (as presently structured) can be housed in 12 shelters. Each shelter provides up to 12 workstations that can be configured for various functions in supervising and controlling air operations. MTACC's common hardware and software will maintain data on the battlefield situation including the current status of friendly resources and enemy activity. Networks will permit communications (data and voice) within the MTACC.[37]

The MTACC is designed to allow the tactical air control center to be tailored to meet a variety of operational requirements. If communications connectivity can be achieved, one or two MTACC shelters could be deployed while the bulk of shelters function "in-garrison." Under this concept,

> guidance and the current situation could be relayed from the deployed site to the home station TACC where detailed planning, operations, and intelligence would be worked. The ATO, detailed operations, and finished intelligence could then be passed back to the deployed TACC.[38]

The deployed staff would essentially make up a "mini" combat operations division (fig. 8). Its personnel would be selected to fit specific contingencies.

Data Processing

Modular control equipment (MCE) is a highly mobile, automated system that will be the critical communications and information processing hub of

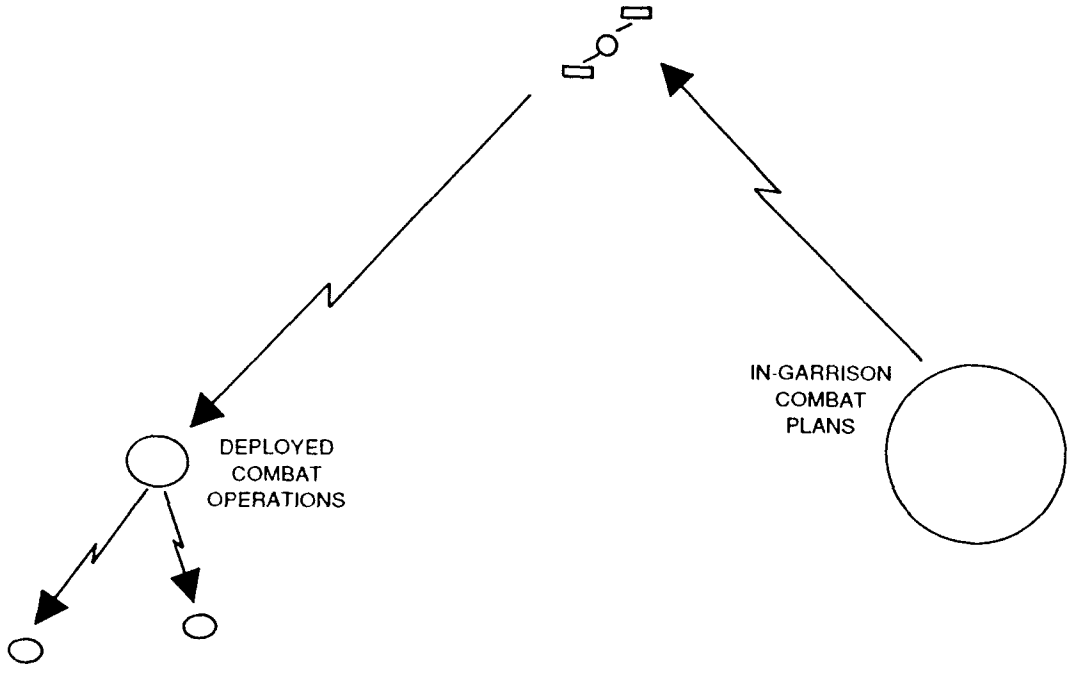


Figure 8. Concept of Operation of Modular TACC for Contingencies

the ground TACS elements. The MCE is composed of the AN/TYQ-23 V2 tactical air operations module (OM). An OM is self-contained in a 20-foot shelter and includes a full suite of digital tactical information links—Tactical Digital Information Link (TADIL)-A, TADIL-B, NATO Link-1, Adaptive Targeting Data Link (ATDL)-1, and a link for the Joint Tactical Information Distribution System (JTIDS).[39] MCE assigned to the control and reporting centers and forward air control posts will replace existing equipment, emphasize radar data processing, and enhance the ground control intercept function. Each module will have the computing power to accept, process, correlate, and distribute radar signals and will be able to integrate up to three local and remote radars as well as to data-link tracks supplied from other agencies or locations.

Communications

Future TACS communications will follow a triad approach of troposcatter systems, satellite communications, and high-frequency (HF) radios. The triad approach reduces reliance on terrestrial systems (landlines and microwave) that are susceptible to attack and that have few accessible interface points.[40]

The recently fielded AN/TRC-170 troposcatter system will be the workhorse for the TACS.[41] It provides wideband connectivity between ground TACS elements with the "capability for transmission and reception

of digital voice and record traffic (teletype and facsimile) at ranges from 50 to 200 miles."[42]

The troposcatter system is augmented by TSC 94/100A Ground Mobile Force Satellite Communications (GMF SATCOM) terminals which are used for CONUS-to-theater, intertheater, and secondary intratheater communications. GMF SATCOM uses the Defense Satellite Communications System (DSCS) and, in the future, will use the Military Strategic and Tactical Relay Satellite (MILSTAR).[43]

High-frequency, single-sideband communications are provided by the TSC-60 (V) for use at the TACC, CRC, and ASOC. "The TSC-60 provides voice, continuous wave, teletype, or high-speed data signals, and multiplexed data and speech plus teletype signals."[44] The V4 version provides point-to-point and ground-to-air communications. FACPs use AN/GRC-106 and AN/GRC-157 for HF communications. Eventually, MCE will replace the current HF radios within the TACS.[45] Figure 9 depicts TACS communications relationships.

Radar

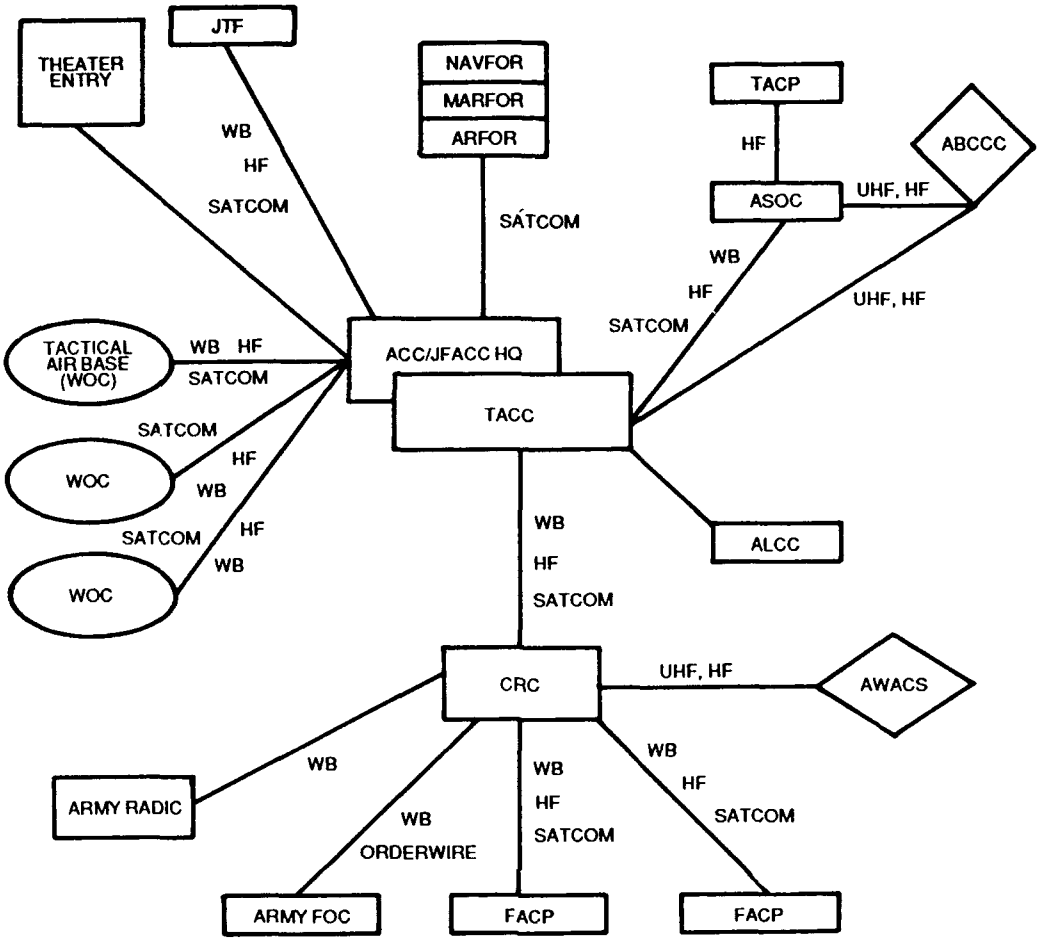
The AN/TPS-43E radar is currently being enhanced (and redesignated the AN/TPS-75) under the Seek Screen radar improvement program. Radar and radio remoting that will tie the system to the parent unit via the AN/TRC-170 is being designed into the TPS-75 and MCE.[46]

Air Attack Action Plan

A major effort is under way in the TACS to enhance the collective combat power of air and ground resources through increased synchronization of combat operations. The "Air Attack Action Plan" proposes changes in TACS organization, structure, and planning functions that, along with equipment modernization, should enhance TACS responsiveness to Army elements.[47]

> The plan addresses five areas: Planning, Tactical Air Control System/Army Air Ground System (TACS/AAGS) Modernization, Helicopterborne Forward Air Controller (H-FAC), Joint Air Attack Training and a Tactics, Techniques and Procedures Manual.[48]

For this discussion, TACS/AAGS modernization is the most significant of these areas. The purpose of the modernization is to improve the tactical air control system's ability to synchronize air attack and to mass firepower. Extremely important changes under TACS/AAGS modernization are ASOC relocation, equipment upgrade, and role enhancement.[49] Current air support operations center basing is with the parent tactical air control center until deployment, when the ASOC collocates with corps headquarters. Tactical Air Command (TAC) is considering garrisoning ASOCs with their corps headquarters and having the ASOCs commanded by corps air liaison officers. The purpose of this alignment would be to foster a closer working relationship with the Army through joint planning and exercises and, thereby, to reduce the initial confusion typical of the early stages of deployment and join up.[50]



Note: In a full-blown scenario, two CRCs would normally be deployed under a single TACC.

Figure 9. Tactical Communications Overview. The modes of communication for tactical command and control are provided. SATCOM refers to satellite communications, HF refers to high-frequency communications, and WB refers to tropospheric communications in the ultrahigh frequency/superhigh frequency range.

The air support operations center is being modernized under the CTAPS program, the same umbrella program under which MTACC is being fielded. The new ASOC will be able to receive joint, correlated air and ground displays from the TACC and, when it is fielded, the Army All Source Analysis System. Global Positioning System and communications/data processing upgrades are also planned.[51]

With development and fielding of near real-time information systems, the role of the ASOC will be enhanced. The demand on the ASOC to control battlefield air interdiction will increase. The ASOC will become more involved in updating target locations, defenses, and attack criteria in close coordination with the TACPs and TACC.[52] Efficient BAI reduces demands for close air support, the ASOC's current primary mission. The main ASOC

BAI focus will be adjustments to BAI missions involving little more than coordinate changes. BAI will remain the primary responsibility of the TACC, but portions of the overall BAI effort can be delegated to the ASOC to shorten the lengthy coordination process.[53]

Conclusion

This chapter provided a primer on the tactical air control system by distilling numerous TACS regulations and concepts of operations. TACS elements are many but are unified in a command structure to ensure the ACC/JFACC can run the air operation. The TACS is primarily trained, organized, and equipped to run a large-scale air war, but new systems that will increase its efficiency, flexibility, and deployability will also increase its ability to address smaller-scale contingency operations. Thus, the TACS will not only be better able to respond to a worst-case scenario but also to a variety of contingencies short of theater-level war. The next chapter examines the nature of such contingencies as background before the paper examines the principles by which the TACS can be tailored.

Notes

1. Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, 16 March 1984, 2-20 through 2-21.

2. Tactical Air Command Regulation (TACR) 55-44, *Tactical Air Control System (TACS) Ground Radar Element Operations*, 29 August 1985, 2-1.

3. Under current doctrine a JFACC will likely be designated, but there is no requirement that a JFC must appoint a JFACC. The single air commander remains an issue of doctrinal debate among the services.

4. TACR 55-45, *Tactical Air Force Headquarters and the Tactical Air Control Center*, 8 April 1988, 1-1.

5. Ibid., 5-1.

6. Ibid., 4-1.

7. Ibid., 6-1.

8. Ibid., 6-3 through 6-8.

9. Ibid. The description of a combat intelligence division is primarily drawn from chapter 7, especially 7-1, 7-8, and 7-9.

10. Ibid. The description of a combat operations division is primarily drawn from chapter 8, especially 8-1 through 8-7.

11. TAC Concept of Operations, "Modular Tactical Air Control Center," Headquarters TAC/DOY, Langley AFB, Va., June 1990, 5. Hereafter referred to as CONOPS MTACC.

12. TACR 55-45, 8-7, 8-8.

13. Ibid. The description of an enemy situation correlation division is primarily drawn from chapter 4, especially 4-1 through 4-2.

14. Ibid., 5-4.

15. Ibid., 4-4, 8-9.

16. Ibid., 4-4.

17. AFM 2-10, "Aerospace Operational Doctrine for Special Operations," draft, 20 August 1990, 4-2.

18. TACR 55-45, 4-4.
19. Ibid.
20. Ibid., 3-2.
21. Ibid., 5-1, 5-2.
22. Ibid., 5-1. For in-depth information on the CRC, see TACR 55-44.
23. Ibid., 5-2. In-depth information on the CRP can be found in TACR 55-44.
24. TACR 55-44, 5-1, and TACR 55-45, 5-2.
25. TACR 55-54, *Airborne Elements of the Tactical Air Control System (AETACS)*, 30 October 1987, 1-1.
26. TACR 55-44, 1-1 through 2-1.
27. TACR 55-3, *Airborne Warning and Control System*, 6 October 1986, 5-1.
28. TACR 55-130, *EC-130E and EC-130H Operational Procedures (USAFE)*, 17 October 1989, 32.
29. TACR 55-45, 5-2.
30. TACR 55-46, *The Tactical Air Control System (TACS)-Air Support Operations Centers (ASOC), and Tactical Air Control Parties (TACP)*, 20 April 1988, 1-2 and 2-1.
31. Ibid.
32. TACR 55-45, 5-3.
33. Ibid., 5-1.
34. Ibid., 5-3.
35. Ibid.
36. Ibid.
37. CONOPS MTACC, 9.
38. Ibid., 8.
39. TAC Concept of Operations, "Modular Control Equipment" (U), Headquarters TAC, Langley AFB, Va., 1 May 1987, annex K, sec. 1, Tactical Air Force Command, Control, and Communications Overview (U). (SECRET) Information extracted is unclassified.
40. Ibid., par. C^2c. Information extracted is unclassified.
41. Ibid.
42. Ibid., annex K, sec. 2, par. B. Information extracted is unclassified.
43. Ibid.
44. Ibid.
45. Ibid., par. C. Information extracted is unclassified.
46. Ibid., par. B. Information extracted is unclassified.
47. "Air Attack Action Plan," draft (Langley AFB, Va.: Headquarters TAC, 11 July 1990), 1. The plan proposes much needed changes in the organization of the TACS to support the Army and is viewed favorably by TACS personnel in the field.
48. Ibid., ii.
49. Ibid.
50. Ibid., 9.
51. Ibid.
52. If the Joint Surveillance Target Attack Radar System (J-STARS) is fielded, it will be incorporated into the TACS under the CTAPS program. J-STARS will significantly improve BAI targeting.
53. "Air Attack Action Plan," 8.

Chapter 2

Contingencies Short of Theater-Level War

The previous chapter outlined the tactical air control system. As noted, the system was developed primarily to support theater-level warfare. It is a large, complex, and highly capable system that should be modified when it must operate in smaller-scale contingencies. The need is to reduce the TACS's size and complexity without losing required command and control functions. Specific parameters for a tailored TACS are dictated by a number of factors; among the most important of these factors are the characteristics of the contingency in which the TACS must operate. Thus those responsible for modifying the tactical air control system must understand the conflicts, and US responses to those conflicts, common at the lower end of the operational continuum.

Joint Pub 0-1, "Basic National Defense Doctrine," final draft, describes military action in the context of war and in military operations short of war. Military operations short of war cover a wide range of actions at home and abroad, forcible and nonforcible, in events not requiring or permitting a declaration of war. Although the distinction between operations in war and operations short of war is significant for reasons of international law and the commitment US political leadership is willing to make (based on national interests and international and domestic circumstances), the distinction confuses the issue.[1] Based on the distinction established in Joint Pub 0-1, the Korean War and the Vietnam War would technically be classified as military operations short of war, but from a TACS perspective they constituted full-scale efforts.

Contingency operations discussed in this paper are more appropriately tied to low intensity conflict (LIC) as one of the four major operational categories of that realm. These categories are insurgency and counterinsurgency, combating terrorism, peacekeeping, and contingency operations.[2] The term *low intensity conflict* was coined to better focus on the lower range of the operational continuum. The term encompasses political-military confrontations above routine and peaceful activities among states but below conventional war. LICs are usually localized affairs, but by the very nature of US involvement contain regional and global security implications.[3] Unfavorable outcomes of LICs may "gradually isolate the US, its allies, and its global trading partners from each other and from the world community."[4] The net result could be loss of strategic energy

and mineral resources; restriction of basing, access, and air and sea transit rights; realignment of friendly and allied nations toward accommodation with hostile groups; and other overall advantages for US adversaries.[5] Contrarily, successfully executed contingency operations can safeguard US and allied interests. This chapter describes the form of contingency operations in which aerospace power will likely play a vital role if US and allied interests are to be safeguarded. These operations require a tailored TACS to meet contingency requirements.

Roles

Contingency operations that are likely to involve a deployed TACS fall into seven roles.

- Disaster Relief
- Noncombatant Evacuation Operations
- DOD Support to Counterdrug Operations
- Show of Force
- Operations to Restore Order
- Recovery
- Attacks and Raids[6]

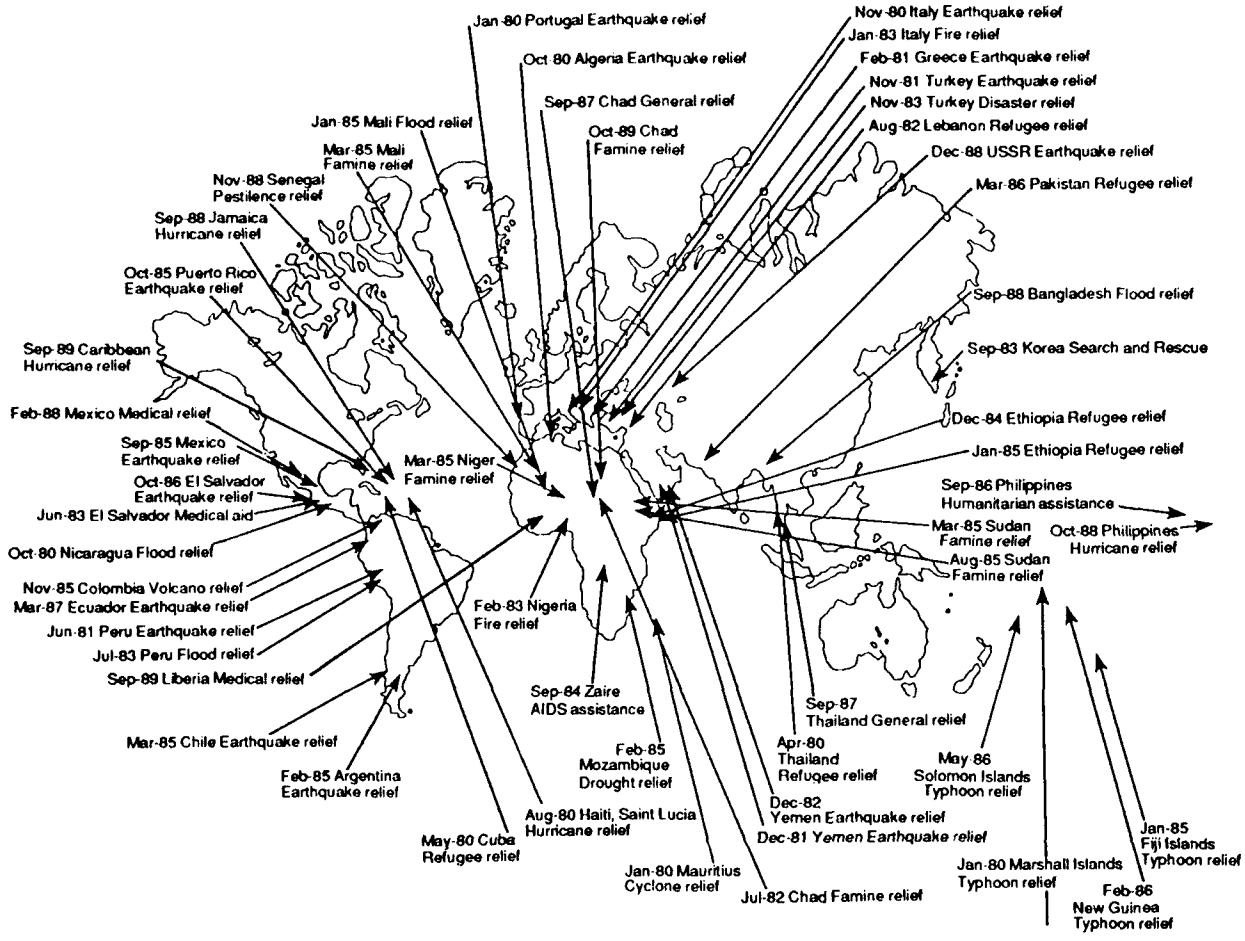
Disaster Relief

The mission in disaster relief is to alleviate human suffering brought on by a variety of natural and man-made disasters. The response is usually short notice and, in general, centers on airlift of supplies and critical personnel to and from a disaster site. Specific functions include damage assessment, fire fighting, medical assistance, engineer/maintenance support, graves registration, mass feeding/shelter, religious support, and local security.[7]

The most famous and most complex humanitarian assistance effort was the Berlin airlift. The airlift lasted from 26 June 1948 until 1 August 1949. At completion it had accomplished 266,600 flights, which delivered more than 2,223,000 tons of supplies, food, and fuel to the 2,500,000 civilian and military residents of West Berlin.[8] Disaster relief operations in the 1980s are shown in figure 10. When properly orchestrated, such airlifts provide results greater than help for the stricken. The psychological effect of "conducting a disaster relief mission can sometimes bolster American economic, military, sociological, and political vulnerabilities in the stricken area and forestall or avert further, more traditional operations."[9]

Noncombatant Evacuation Operations

"Noncombatant evacuation operations (NEO) relocate civilian noncombatants from locations in a foreign (host) nation"[10] and are classic low-intensity missions. Such evacuations usually involve US citizens but may



Source: ***Airlift and U.S. National Security: The Case for the C-17, an Air Force Perspective*** **(Washington, D.C.: Secretary of the Air Force, 1991), 6.**

Figure 10. Humanitarian Airlift Operations in the 1980s

also include indigenous and third country personnel. They also usually involve rapid force insertion, temporary occupation of an objective (in the case of airlift, a landing site), and rapid withdrawal.[11] Ideally, noncombatant evacuation operations are conducted in a benign environment; however, because of the political volatility usually associated with such efforts, hostilities should be anticipated.[12] Lethal force is used only for protection of evacuees and in self-defense. In the face of violent opposition, combat action may be required to defend the operation, and NEOs can quickly turn into operations to restore order if the situation deteriorates.[13]

The Department of State, acting for the national command authorities and usually on advice of the chief of the diplomatic mission, initiates evacuation operations.[14] The Department of State obtains basing and overflight permission and use of facilities from other governments to expedite operations.[15] Typically, noncombatant evacuation operations begin with the embassy escape and evacuation plan, which usually calls for early withdrawal of nonessential personnel and dependents by commercial transport.[16] If the early stages of such operations are properly accomplished, only a minimum number of personnel require emergency evacuation.[17]

Support for Counterdrug Operations

Because of escalating drug use and drug-related violence in the United States, the military is increasingly being called upon to support US and foreign civil authorities in counterdrug efforts. The Posse Comitatus Act and other US laws and regulations permit but limit military activities as applied to law enforcement. "Employing specialized aircraft, ships and personnel, military forces help the US Coast Guard and other US law enforcement agencies track and interdict illegal drug shipments."[18] For example, AWACS training flights have been adapted to assist in detection and monitoring of possible drug-carrying aircraft.[19] Other TACS elements (e.g., control and reporting centers and control and reporting posts) conduct similar activities.

"As directed by the National Command Authorities, US military forces also assist foreign governments in eradicating illicit drug cultivation and processing operations within their borders."[20] In addition, US military personnel assist foreign nations in tracking, surveillance, and interdiction of illegal drug traffic (e.g., US ships carry foreign authorities to search possible drug-carrying vessels and to make arrests).[21] US military antidrug activities in support of foreign nations are also a form of political reinforcement and are part of the US collective security program.

Since President Ronald Reagan signed the Anti-Drug Abuse Act of 1986, US efforts in counternarcotics have increased dramatically (antismuggling funds were increased to $1.37 billion in fiscal year 1987, 35 percent of the total drug abuse budget).[22] With increased funding, US military involve-

ment has also risen, and military support to counterdrug operations can be expected to increase in the future.[23]

Show of Force

The NCA order a show of force to bolster friends and allies and to demonstrate US resolve to use military force as an instrument of national policy.[24]

> These operations can influence another government or political-military organization to respect US interests or to enforce international law. . . . The introduction or buildup of a credible military force in a region . . . can underscore national policy interests and commitment. However, overuse of these operations may generate adverse psychological effects.[25]

A show of force can take the form of visits of US ships or aircraft, combined exercises, or the timely deployment of military forces. Excellent logistics and command, control, communications, and intelligence are required for sustainment. Moreover, international liaison must be maintained to demonstrate US political will as well as military capability.[26] Combat is not the goal; persuasion of the target state or organization is the mission.[27]

Operations to Restore Order

The United States conducts operations to restore order to force an end to a violent conflict and to induce diplomatic resolution of grievances.[28] "The United States typically undertakes [operations to restore order] at the request of appropriate national authorities in a foreign state or to protect US citizens."[29] US activities may be unilateral or as part of a multilateral or international effort.[30] Within an operation to restore order, "ROEs [rules of engagement] are apt to be restrictive because the purpose of the force is to maintain law and order."[31] On balance, operations to restore order are complicated and highly unorthodox missions that require consistent mission analysis, clear command and control relationships, effective communication facilities, joint and combined force liaison, and effective public diplomacy and psychological operations.[32]

Prompt US withdrawal upon contingency termination and rapid transition to peacekeeping operations by neutral nations or United Nations forces are often prudent.[33] US operations to restore order in Lebanon in 1958 and the Dominican Republic in 1965 suggest that success depends upon clarity of objective and outstanding command and control of deployed forces.[34]

Recovery Operations

Covert or overt recovery operations include the location, identification, and retrieval of US citizens or friendly nationals and of sensitive equipment or items critical to US national security.[35] The *Mayaguez* incident, the Iran hostage rescue attempt, and the Grenada operation are examples in this category.[36] Such operations may be opposed, but "stealth, surprise, speed, and the threat of overwhelming US force can deter opposition."[37]

Attacks and Raids

"Successful attacks or raids can create situations that permit seizing and maintaining the political initiative. Attacks and raids can also place considerable pressure on governments or groups sponsoring or supporting terrorism."[38]

Attacks are ground, air, or naval strikes (or a combination thereof) to damage or destroy high-value targets or to demonstrate national resolve as an extension of a show of force operation. The duration of such operations is often measured in hours and minutes. "Raids are usually operations involving swift penetration of a hostile environment to secure information, seize an objective, or destroy targets."[39] Ideally, raid operations last a matter of hours, but they can extend over a period of days. Both missions—attacks and raids—include a planned withdrawal. Since attacks and raids involve the overt use of force, both have a high potential for escalation.[40]

The tactical air control system has an important function in attacks and raids. A streamlined chain of command that emphasizes responsibility and accountability from initial planning to mission completion is essential.[41] Moreover, because of the political sensitivity of the mission, "the NCA, through the Joint Chiefs of Staff, may directly monitor tactical operations."[42] The US air attack on Libya and the raid on Panama are examples of operations in this category.

Foreign Internal Defense

Although foreign internal defense (FID) is not technically categorized as a contingency operation, the TACS, by direction of the national command authorities, may assist in FID.[43] FID is US military and civilian support of "action programs taken by another government to free and protect its society from subversion, lawlessness, and insurgency."[44] US support to host nations is usually indirect, through security assistance, training, and logistics support. "Military actions range from providing intelligence, materiel support, and training to strategic, operational, and tactical advice."[45] In extreme circumstances, FID operations may also involve direct action by US combat units. The burden of the conflict, however, rests with the host nation.

Within the FID arena, the most troubling form of conflict is insurgency/counterinsurgency, and the most sophisticated form of insurgency in terms of organization and method is mass-oriented insurgency as originated in China by Mao Ze-dong. A successful insurgency may last decades and is categorized by three classical phases:

- phase one, latent and incipient,
- phase two, guerrilla warfare, and
- phase three, war of movement.

Table 1 describes the phases and typical activities within them.

Table 1

Typical Activities within the Phases of Insurgency

PHASE I. (LATENT AND INCIPIENT)
- ORGANIZATION: Organize, educate, proselytize; infiltrate other organizations; form party
- PROBATION: Infiltrate government and other organizations; create local cells, expand national cells, train groups; conduct political activity more openly:
  - Labor oranization
  - Front groups/political organization
  - Strikes

PHASE II. (GUERRILLA WARFARE)
- INITIATION: Initiate low-level violence—sabotage, terrorism; conduct propaganda; conduct psychological operations; politically mobilize masses; seek international support; create base areas/low-level guerrilla action
- INSURRECTION: Establish/expand base areas; expand guerrilla attacks; proclaim countergovernment
- CONSOLIDATION: Expand attacks; expand political activity; enlarge forces; enlarge, link base areas

PHASE III. (WAR OF MOVEMENT)
- CONFRONTATION: Begin conventional war; continue guerrilla war
- FINALIZATION: Establish national government; neutralize/eliminate political front allies; consolidate military-political dominance; neutralize/eliminate former political elite

GOAL: POLITICAL CONTROL/REPLACEMENT OF THE SOCIOECONOMIC SYSTEM

Source: Field Manual 100-20/Air Force Manual 2-20, "Military Operations in Low-Intensity Conflict," final draft, July 1988, 77.

Countering mass-oriented insurgency is a complex but achievable activity. The strategy is twofold: "to prevent insurgent activities from escalating and, ultimately, to eliminate the insurgent threat."[46] Certain counterinsurgency activities are important during each phase.

Phase one efforts focus on governmentwide actions to improve political, economic, and social conditions. Measures should be taken to strengthen the psychological and organizational links between government and

populace. In addition, measures to control the insurgents' access to the populace and resources are critical and part of a total military civic-action program. To enhance this effort, actions must be taken to improve police performance, intelligence and counterintelligence operations, and psychological operations. Such actions include upgrading of security forces and training of military forces in counterinsurgency operations.[47]

Phase two counterinsurgency efforts focus on strengthening territorial security forces to increase populace and resource control. In addition, measures must be taken to isolate the insurgents from the populace physically and psychologically through a strong psychological operation (PSYOP) campaign.[48]

Phase three is conventional warfare against an insurgent army. The goal is to regain the initiative and drive the insurgency back through phase two and then to eliminate the insurgent threat.

US personnel conducting FID operations can become involved at any level of counterinsurgency. In the earliest stages of insurgencies, tactical intelligence support may be the single most beneficial US activity. In phase two, the best form of US support is usually in training, equipping, and supplying the host military. During this phase, preparation for possible US involvement in phase three conventional operations may also be conducted. Note that the US intention is to leave responsibility for and execution of counterinsurgency to the host country. At whatever level it may occur, US support is meant to preclude the necessity for direct intervention and does not automatically escalate to US combat operations if the insurgency escalates. Nevertheless, the US role may become more direct if the insurgency moves toward phase three operations.

Elements of the TACS may be involved in all stages of counterinsurgency operations. They may provide support through tactical intelligence exchanges in phase one, through intelligence sharing and enhancement of host-country TACS capabilities in phase two, and through direct involvement, especially as the insurgency moves toward phase three.

Contingency Environment

Low intensity conflict contingency operations are "characterized by short reaction times, volatile political situations, restraint in the use of force and commitment of forces to the less developed areas of the world."[49] The reasons for assuming that such contingencies are most likely to occur in the third world rest, at the risk of oversimplifying, in the existence of common circumstances. These circumstances include a heritage of colonialism which has left a highly uneven distribution of wealth. Concentration of riches in the hands of a few has produced an economic "dualism" characterized by the existence of a rural, impoverished, and neglected sector alongside an urban, developing, and modernizing sector. Adverse terms of trade usually exist due to export concentration on such

primary products as foodstuffs and other basic commodities, and import reliance on relatively more expensive manufactured goods. The typical third-world country's economy is shackled by massive indebtedness, both public and private, and often suffers from runaway inflation. In addition, dependence on outside economic, technological, and security assistance aid promotes penetration by alien cultures, multinational corporations, and international financial institutions. Finally, high rates of illiteracy and infant mortality and low levels of public education and health, in conjunction with the previously mentioned conditions, promote domestic instability and high incidence of civil strife.[50]

These adverse conditions foster conflict. Between 1945 and 1976 there were 120 wars in the third world, making these conflicts the prevalent form of warfare in the post–World War II era.[51] Equally important, 77 percent of these conflicts saw some form of US, European, Soviet, or Chinese participation.[52] Since 1945 the United States has used the military as an instrument of foreign policy on 243 occasions, mostly in response to third-world crises.[53] Thus third-world crises appear to be the most likely cause of armed conflict for the foreseeable future, and they are the crises most likely to precipitate a US contingency response.

The United States faces numerous challenges that will likely require contingency responses. Events of the last decade allow some general observations about conflicts that fall within the lower range of the operational continuum. One overarching observation is that with a few exceptions (in the Persian Gulf region for instance), the United States is unlikely to enjoy the collective security arrangements it had during the cold war era. Diverging points of view between the United States and its allies over third-world crises are likely.[54] A second general observation is that, as already noted, low intensity conflicts are relatively widespread in the third world, and many such conflicts affect US security interests. The following regional surveys illustrate these points.

Middle East/Southwest Asia

During the next decade, the Middle East will continue to be of major importance to the United States because oil from the region will continue to be a keystone of US and allied economic well-being. The prospect for contingencies in the area has shifted from direct US-Soviet confrontation to one in which indigenous states pose the major threat to US interests. The ever-present Arab-Israeli dispute has brought US operations to restore order in Lebanon, and the growth in power of Iraq, and its subsequent aggressiveness, has already resulted in a theater-level response as well as smaller-scale operations. The invasion of Kuwait by Iraq and the resulting Desert Shield/Desert Storm operations present the perfect example of how regional turmoil can rapidly expand to a global dimension.

Islamic fundamentalism and revolution within the moderate Arab states also threatens the region's geostrategic and political balance.[55] In addition

to the obvious effect of revolution within the oil producing states, radicalization of Arab countries commanding key sea lines of communication could damage US interests. Moreover, state-supported terrorism against US personnel and interests could result in further US direct action in the form of attacks or raids.

Islamic fundamentalism and Iraqi aggression are not the only stimuli to regional conflict. Water rights are long-standing regional problems that could easily result in war. Long-standing civil strife in Oman, Ethiopia, and Somalia as well as border disputes between Yemen, Oman, and Saudi Arabia create conditions fertile for conflict.

Latin America

"Latin America is one of the largest loci of US foreign investment and trade."[56] While the region's oil, strategic minerals (primarily manganese and aluminum), and low-cost manufactured goods are of high value, the vital factor is that Latin America is the southern flank of the United States. For example, during a European war, over half of NATO's supplies would come from ports in the Gulf of Mexico or would pass through the Panama Canal.[57]

The entire region is ripe for insurgent activities. Economic and social injustice, population growth in excess of food supply and distribution, maldistribution of land and wealth, and foreign trade imbalances compounded by high foreign debt remain major drivers of instability.[58] In addition, since the mid-1960s, Latin America has been the scene of Soviet-assisted, Cuban-sponsored insurgency that could negatively affect US economic and political interests for at least the next decade.[59] Realization of this danger has led US decision makers to act boldly in recent years with regional counterintervention operations in the Dominican Republic in 1965, Grenada in 1983, and Panama in 1989. While the success of Soviet and Cuban promoted insurgency has declined (the reversal of the regime in Nicaragua being a case in point), El Salvador, Guatemala, and Peru remain in a nascent state of civil war. Suriname, following a left-wing coup, has aligned with Cuba.[60]

Beyond these challenges to US security policy in the region, narcotics production and trafficking are increasingly recognized as threats. Seven Latin American/Caribbean countries are sources of marijuana, cocaine, and heroin shipped to the United States. Mexico, Colombia, Jamaica, and Belize produce 90 percent of all the marijuana imported into the United States. Virtually all cocaine imported to the United States is produced by Peru, Bolivia, or Colombia; but in the past few years coca production has spread to Venezuela, Brazil, Ecuador, Paraguay, and Argentina. Mexico accounts for approximately 39 percent of US heroin imports. In addition to the direct threat to US societal values such drugs pose, drug cartels undermine political stability in the region, and drug production finances insurgent groups.[61]

Africa

Like Latin America, Africa is in a state of turmoil, and US strategic interests in the region are significant. The continent's minerals—cobalt, chromium, manganese, and titanium—are of great importance to US defense industries.[62] Nigeria remains an important source of oil and may become a major supplier of liquefied natural gas.[63] Moreover, at least 30 percent of US imported oil travels via sea lines of communication along the Indian Ocean littoral, around the Cape of Good Hope, and through the South Atlantic.[64] The region contains three additional critical sea choke points: the Strait of Gibraltar, the Suez Canal, and the Bab al Mandeb.

Although large-scale military operations in the region do not appear as likely as in the Middle East, the potential for smaller contingency operations in the region seems relatively high. Man-made and natural disasters provide ample opportunity for regional conflict and instability. The situation surrounding the Republic of South Africa remains potentially the most serious problem with the frontline states of Angola, Botswana, Zambia, Zimbabwe, Mozambique, and Tanzania all virulently opposed to the apartheid government. Insurgencies in Angola, Mozambique, and South Africa compound the problem. Drought, famine, and civil war continue to plague the Horn region in Somalia and Ethiopia and have already required several US disaster relief operations. Libyan adventurism in Chad and Sudan's civil wars, as well as Shaba Province secessionist pressures in Zaire, continue to destabilize that region, and the Polisario Front's conflict in Morocco could continue.[65] Finally, the civil wars in Liberia and Somalia have resulted in a US noncombatant evacuation operation. In sum, continuing instability in Africa could result in serious problems for the United States and could require a variety of contingency operations.

East Asia/South Asia

US interests in the East and South Asian subregions may be described as stability and prosperity. US trade with East Asia totals almost $300 billion per year compared to smaller but significant levels with South Asia. East Asia's growing prosperity and the near collapse of the Soviet economy have reduced much of this area's potential for ideological conflict, but the situation in South Asia is still fragile and dangerous. Potential flashpoints exist in both areas, the most significant of which is the India-Pakistan dispute over Kashmir. Beyond its contribution to the difficult relations between the two countries, this dispute serves as one of the incentives for Pakistan and India to manufacture nuclear weapons.[66] Of direct consequence to the United States, 50 percent of US heroin imports comes from the Golden Crescent (especially Pakistan) and the Golden Triangle (especially Burma).[67]

Common threads tie these regions together: instability and its effect on US interests. US contingency responses will vary depending upon the weaving of the threads in specific situations, but such responses become

increasingly probable to the degree instability heightens and threatens US interests.

Conclusion

This chapter described the form of military operations in which United States air power will be most likely to engage in the near future. Such contingency operations are most likely to occur in the third world and focus on the lower end of operational continuum.

The common characteristics of LIC contingency operations include short reaction times, volatile situations, constraining rules of engagement, and location in lesser-developed regions of the world. The intensity of violence will vary with mission type and specific situation, but from the TACS perspective tailoring is required. The next chapter discusses principles for tailoring the TACS for such contingency operations.

Notes

1. Joint Publication (Pub) 0-1, "Basic National Defense Doctrine," final draft, 24 July 1990, II-22.
2. Joint Test Pub 3-07, *Doctrine for Joint Operations in Low Intensity Conflict*, October 1990, I-1.
3. Ibid.
4. Field Manual (FM) 100-20/Air Force Manual (AFM) 2-20, "Military Operations in Low-Intensity Conflict," final draft, July 1988, 1.
5. Ibid.
6. Joint Test Pub 3-07, V-5 through V-10. The descriptions of contingencies likely to involve a US response are, for the most part, closely paraphrased from the test publication and FM 100-20/AFM 2-20 for the purpose of accuracy.
7. Maj Andrew N. Pratt, USMC, "Low-Intensity Conflict and the United States Marine Corps," in *Low-Intensity Conflict and Modern Technology*, ed. Lt Col David J. Dean (Maxwell AFB, Ala.: Air University Press, June 1986), 295.
8. Lt Col Charles E. Miller, USAF, *Airlift Doctrine* (Maxwell AFB, Ala.: Air University Press, March 1988), 175.
9. Pratt, 294.
10. Joint Test Pub 3-07, V-5.
11. Ibid., V-6.
12. FM 100-20/AFM 2-20, 48.
13. Ibid., 49.
14. Pratt, 298.
15. FM 100-20/AFM 2-20, 48.
16. Pratt, 298.
17. FM 100-20/AFM 2-20, 48.
18. Ibid., 51.
19. Ibid.
20. Ibid.
21. Ibid.

22. Bruce M. Bagley, "The New Hundred Years War? US National Security and the War on Drugs in Latin America," *Journal of Interamerican Studies and World Affairs* 30, no. 1 (Spring 1988): 162.

23. FM 100-20/AFM 2-20, 51.

24. Ibid., 47.

25. Ibid., 48.

26. Ibid.

27. Ibid.

28. The term *operations to restore order* is found in Joint Test Pub 3-07. It replaces the term *peacemaking* found in draft FM 100-20/AFM 2-20 as the name of this role in contingency operations.

29. FM 100-20/AFM 2-20, 50.

30. Ibid.

31. Ibid.

32. Ibid.

33. Pratt, 296.

34. FM 100-20/AFM 2-20, 51.

35. Ibid., 49.

36. In the view of many military analysts, the presence of C-130 ABCCC and OV-10 aircraft at Koh Tang Island kept the mission from total failure. In all, 15 Marines and airmen were killed and three were missing in action.

37. FM 100-20/AFM 2-20, 49.

38. Joint Test Pub 3-07, V-6.

39. FM 100-20/AFM 2-20, 49.

40. Ibid.

41. Ibid., 50.

42. Ibid.

43. Ibid. The discussion of foreign internal defense is based primarily on the draft FM 100-20/AFM 2-20, especially 20, 22, 24, and 80–81. Close paraphrasing is used to ensure accuracy.

44. Ibid., 22.

45. Ibid., 20.

46. Ibid., 80.

47. Ibid.

48. Ibid.

49. James J. Coghlan, Jr., "Battlefield Intelligence," *Defense Electronics*, August 1989, 61.

50. Charles W. Kegley and Eugene R. Wittkopf, *American Foreign Policy: Pattern and Process*, 3d ed. (New York: Saint Martin's Press, Inc., 1987), 13.

51. Ibid., 15.

52. Ibid.

53. Col Kent E. Harbaugh, USAF, chairman, Department of Warfare Studies, lecture, Air War College, Maxwell AFB, Ala., 21 January 1991.

54. Richard H. Shultz, Jr., "Low-Intensity Conflict and US Policy: Regional Threats, Soviet Involvement, and the American Response," in *Low-Intensity Conflict and Modern Technology*, 82–83.

55. Ibid., 84.

56. Ibid., 85.

57. William J. Taylor, *The Future of Conflict: US Interests* (New York: Praeger, 1983), 11–13.

58. Bynum E. Weathers, "Factors Affecting the Emergence of Low-Intensity Conflict in Latin America," in *Low-Intensity Conflict in the Third World* (Maxwell AFB, Ala.: Air University Press, August 1988), 99–100.

59. Shultz, 85.

60. Ibid., 86.

61. Bagley, 162.

62. Thomas P. Ofcansky, "Low-Intensity Conflict in Southern Africa," in *Low-Intensity Conflict in the Third World*, 124. For more on South Africa's minerals and the US defense industry see *Africa Research Bulletin*, 28 February 1987, 8544–45.

63. Shultz, 88.

64. Ofcansky, 124.

65. Shultz, 88–89.

66. East Asia/South Asia analysis provided by Dr Lawrence E. Grinter, professor of East Asian regional studies, Political-Military Affairs Division, at the Airpower Research Institute, Center for Aerospace Doctrine, Research, and Education, Air University, Maxwell AFB, Ala.

67. Bagley, 162.

Chapter 3

Principles for Tailoring

Because the details of future US military involvements cannot be accurately predicted, the exact composition of a tailored force with its supporting tactical air control system cannot be fixed in advance. The requirements of specific contingencies will drive the makeup of the military force and requisite TACS application. Brig Gen Kenneth Minihan, Tactical Air Command's deputy chief of staff for intelligence, who, like many of our senior leaders, is wrestling with the framework for future force structure and enhanced operability, has expressed a need for guidelines for determining which TACS capabilities will be required in a given set of circumstances. Such guidelines must be general enough to be applied across the entire range of potential contingencies and yet specific enough to provide meaningful guidance for customizing command and control. In short, the guidelines should be principles underlying TACS tailoring.[1]

Principles

At least seven principles must be addressed to ensure adequate C^2 is provided for a deployed force. These principles are aids to assist the ACC/JFACC and planners in ensuring adequate control is available to employ air power during contingencies.[2] They are shown as a checklist in table 2.

Understand the Objective of the Operation

"The first and most fundamental question to be asked of any prospective war or military action is: What is it about?"[3] The military objective is a derivative of the political goal, and the decision to apply military force is a means to obtain that goal. The point here is not to poorly paraphrase Clausewitz, but to emphasize that the tailoring of the tactical air control system must accommodate the political factors considered in the planning of the air campaign or operation.

For example, a major factor in understanding the mission objective is a review of the rules of engagement governing the conduct of operations. The national command authorities provide these guidelines to focus military activities on the political aim and to safeguard against unforeseen consequences of military action. Because rules of engagement affect the conduct

Table 2

Principles for Tailoring the Tactical Air Control System

Understand the objective of the operation.
- political purpose and sensitivity
- joint force commander's intent and specific military objective
- air power's roles and missions
- rules of engagement

Analyze the scope of the contingency.
- types and numbers of aircraft
- force mix
- mission timing
- anticipated mission duration

Determine command, control, and communications (C^3) functions.
- command relationships
- delegated roles of the TACS

Analyze the operating environment.
- physical threat to the supported assets
- physical threat to the TACS
- enemy C^3CM capability
- weather
- geography
- political climate
- available facilities

Maintain security.
- requirement for surprise
- deployment and employment constraints

Select the most capable resources for deployment and provide maximum support.
- organization/individual specialties
- specialist/generalist mix
- out-of-theater support requirements

Review for suitability, feasibility, acceptability, simplicity, and flexibility.

of air operations, they also affect the planning and execution elements of the TACS. High political sensitivity may result in ROEs that require tight control of air operations.

Because a LIC contingency operation is under constant and rigorous review by the NCA to ensure it continues to meet the political end, changes in the rules of engagement or in the tactical objective may be required. TACS planning for the contingency must provide the ACC/JFACC with the flexibility to adjust to changing contingency requirements.

In the end, the military objective is the basis for force application. The military objective defines what roles and missions air power will employ and thus sets the requirements for the tactical air control system.

Analyze the Scope of the Contingency

The scope of the contingency is a major factor planners must consider in TACS tailoring. While the objective provides the focus, the scope of the operation dictates the weight of military effort for the contingency. The scope can be determined by examining the various factors found in the joint task force commander's concept of operations.

The concept of operations is the commander's best estimate of how objectives can be met in light of available resources and operating constraints. Anticipation of TACS requirements is part of developing the concept of operations, and TACS specialists are vital participants in the process. However, only after the operation is "roughed in" for the concept of operations can control requirements be precisely determined. Thus types and numbers of aircraft to be employed, maximum sorties to be tasked and monitored, force mix for mission execution, and other elements must be refined from the concept of operations. These variables drive required TACS composition.

Two other factors that must be examined under the concept of operations are timing and duration. Major questions here are: When does the TACS have to be in place and for how long is it expected to operate? Timing is driven by numerous factors including strategic warning, decision-maker willingness to act, and command and control requirements at various points in the contingency. For example, if friendly ground forces are not expected to engage in combat until 30 days into a conflict but an air threat exists at commencement, air support operations center personnel could be phased to arrive later than surveillance and air defense control elements. Moreover, in this example, the air defense elements should arrive with the earliest combat force. Duration, on the other hand, is the length of time an operation is expected to last, and it greatly influences required C^2 arrangements. The C^2 requirements for a single strike lasting a total of several hours, perhaps with only minutes in a threat environment, are significantly different from a show of force operation lasting several months.

Determine Command, Control, and Communications Functions

The specific command, control, and communications functions of the TACS in the contingency can be determined from the concept of operations. The two critical factors here are the responsibilities to be delegated to the ACC/JFACC by the JTF commander and the ACC/JFACC's plans to employ air power. Command relationships are a prime consideration. Is the contingency a joint or combined operation or purely an Air Force show? Is the USAF component commander designated the joint force air component commander or subordinate to another air boss? If special operations air assets are involved, what are the peculiar command and control relationships between the JFACC and the special operations forces' air component commander (SOFACC)? Answers to these questions drive the makeup of

TACS planning and execution elements and the type of support required by the ACC/JFACC. A related factor is the extent to which tactical decisions will be made outside the area of operations. Is the mission so politically sensitive that the national command authorities will maintain operational control down to the tactical level, or will the JTF or JFACC have full on-scene authority? TACS composition, and especially closed-loop communication requirements, will be greatly influenced by the nature of command relationships.

Although specific TACS requirements must always be derived from the planned employment of air power in the particular contingency, some general considerations must be borne in mind. TACS elements are designed to focus on specific mission areas (e.g., an air support operations center is usually associated with close air support, a control and reporting center with air defense and airspace management). However, because air power is most effective when employed synergistically, C^3 capabilities must be provided to exercise *coordinated* air power employment. Thus care must be taken not to allow gaps in C^3 coverage in a multimission contingency. In addition, the JTF commander may alter normal TACS missions to better fit requirements. In such cases, the tactical air control system will assure liaison is maintained to deconflict any air activity not directly under its control. Ultimately, the TACS is responsible for unity of effort in the employment of air power in a contingency. This responsibility means that the TACS, through control or coordination, ensures all air power is focused toward the common military objective.[4]

Analyze the Operating Environment

Assessment of the operating environment is critical to TACS tailoring. Such an assessment reveals the threat to air assets the TACS is deployed to control as well as the threat to the TACS itself, geographical and political factors that affect TACS operations, and the availability of usable host-country control assets and support capabilities.

The threat has a multifaceted effect on TACS deployment. The nature of the threat faced during a contingency drives TACS requirements for intelligence collection and processing, near-real-time threat warning, and mission adjustments to meet a dynamic battlefield situation. The threat in general is a major determiner of the types of TACS personnel and equipment required for an operation. The physical threat to the TACS itself is also vital. Included in this threat is the enemy's ability to disrupt TACS operations through communication and electronic countermeasures. While some TACS elements are designed to operate in a high-threat environment, others need a relatively secure operating location.

The second environmental factor is geography, including the size of the area of operations and its natural and man-made features. An operation over a large region may require more mobile control elements than an operation over a relatively confined area. Natural or man-made barriers

may degrade equipment capabilities or bar access to TACS personnel. Another geographical issue is the remoteness of the operating area. Remoteness can affect such vital requirements as intelligence collection, communications, and logistics support. Climate is also a factor. Operations by the airborne elements of the TACS may be severely degraded by extended periods of adverse weather. Likewise, supported aircraft may require increased control during poor weather.

Regional political factors also affect the tactical air control system. Restrictive operating areas may require increased control. In addition, host-country sensitivity to a US military presence may influence what TACS elements are selected and may constrain TACS deployments and operations.

Another environmental factor planners must assess is the in-place assets available for TACS use. A survey must be done to ascertain what C^3 assets and personnel are in place, accessible, and usable for contingency requirements. Likewise, planners must analyze the operating area's support capabilities to include facilities, power, communications, and security and determine their accessibility. The host installation's capacity to absorb TACS assets must also be examined.

Maintain Security

"Never permit the enemy to acquire an unexpected advantage."[5] This concept is critical to customizing the TACS. The system must deploy or have access to capabilities sufficient to protect the ACC/JFACC and air assets from surprise, enemy intelligence collection efforts (through proper communications and operations security), and enemy interference or harassment. If warranted by the situation, TACS deployment and employment must be orchestrated to prevent the loss of surprise. For example, the value of pre-positioning TACS assets for an operation must be weighed against the possibility that an opponent might discover their deployment and be warned that an operation is pending. Likewise, the news media may note the deployment of such highly visible TACS assets as AWACS, ABCCC, or ground-based radar units. For many operations that are highly sensitive politically (e.g., counterdrug activity), deployment and employment of the TACS will have to be as low-key as possible to prevent embarrassment to a host nation.[6] Thus security concerns affect TACS tailoring requirements.

Select the Most Capable Resources for Deployment and Provide Maximum Support

TACS organizations, personnel, and supporting systems must be carefully chosen and supported to provide a viable command and control capability for the ACC/JFACC while maintaining economy of force. The first critical need is to match the mission to the appropriate TACS execution elements. Second, based upon mission requirements, the personnel and systems from those elements and supporting organizations (e.g., major

command headquarters and joint/combined organizations) most capable of accomplishing the mission must be chosen. To guide selection of personnel for deployment, analysis must include individuals' experience and training and their capability for handling multiple tasks while acting independently. In many cases, an informed generalist may be a better choice for deployment than a highly skilled but narrowly oriented specialist. Finally, anticipated duration and intensity of the contingency drive the requirement for redundant specialty manning.

Of paramount importance is the need for supporting the deployed TACS with technical and operational expertise external to the area of operations. Excellent out-of-theater support (i.e., support from organizations in the continental United States or from major US/allied facilities overseas) can compensate for reduced numbers in the field. The concept of operations for the Modular Tactical Air Control Center provides the key to supporting the deployed elements. If communications networks between the deployed TACS and supporting organizations can be provided, deployed personnel can access data and expertise not available at the contingency site. Likewise, communications between personnel and systems within theater provide access to increased expertise, not only within the normal TACS chain but also in joint/combined headquarters. The goal is to maintain the flexibility and capability of the entire TACS without deploying en masse.

Review for Suitability, Feasibility, Acceptability, Simplicity, and Flexibility

This review is the final principle for TACS tailoring. Once a concept of operation for command and control of air power in the contingency is determined and resource selection has been made, a review of the TACS package must be conducted to ensure suitability, feasibility, and acceptability.

The first question that must be asked is whether the modified TACS package provides the control the ACC/JFACC requires to conduct contingency air operations. In other words, will it work? Suitability is the critical issue. A review should be accomplished of the validity of the roles of the TACS as set by the JTF commander and of the expected functions of the ACC/JFACC against environmental and political factors. If time is available, the application should be tested and/or rehearsed and, to the extent possible, procedures practiced in exercises should be employed.

The next question involves the feasibility of the TACS application. Is it logistically possible? This assessment is a critical check.

Obviously, the TACS application must be acceptable (in terms of risk, costs, and time required for deployment) to the ACC/JFACC when weighed against the challenges and constraints imposed by the JTF commander and NCA. The NCA may require a monitoring and intervention capability that in turn could require communications asset deployment over and above that required for ACC/JFACC control.

Finally, the planned TACS package must be reviewed for simplicity and flexibility. Avoidance of unnecessary complexity in planning and conducting military operations is axiomatic. A simple yet capable TACS application conducted promptly is preferable to a complex application delayed. However, in the drive toward simplicity, care must be taken to provide flexibility to respond to changing mission requirements.

Applying the Principles

In "The Strategist's Short Catechism: Six Questions without Answers," noted military historian Philip A. Crowl questions the values of principles when left to stand alone. "Is the old Army Field Manual's solemn pronouncement that every military operation must be directed toward a clearly defined, decisive and obtainable objective really much more helpful than Calvin Coolidge's famous statement that when many men are out of work, unemployment results?"[7] There is a thin line between meaningful guidance and mere truisms that can become empty and meaningless platitudes. Applying principles in scenarios should be more useful.

Scenario 1: Counterair Show of Force

Country A, a small, developing nation with only paramilitary forces, is a valued friend of the United States. Recently, deposits of highly sought strategic minerals have been discovered in its interior. Country B, separated from country A by a large body of water, has become increasingly aggressive and has threatened air attack on A's strategic mineral production facilities. Country B has a small but capable air force with 24 older Fishbed and 24 Fitter ground-attack aircraft. Intelligence indicates activity at B's weapon storage areas and increased training flights of Fitter aircrews in recent weeks. Country A has requested US support and a show of force to deter aggression from B.

US national command authorities have decided to respond to A's request with a rapid deployment of two squadrons of F-15s under the command of a single air task force commander, subordinated to a theater commander through the air component commander.[8] The squadrons must be in place and mission capable within 48 hours. The objective of the contingency operation is to protect country A, especially its strategic mineral production facilities, from aerial attack. US rules of engagement allow shooting down aircraft identified as hostile by visual or technical means. All unauthorized aircraft entering country A's airspace will be intercepted. There are no good estimates of duration of the contingency, but several months of deployment seem likely.

Currently, weather conditions in the region are good, but the rainy season, in which widespread thunderstorms are common, will commence in approximately 45 days. Country A has three runways capable of supporting all US aircraft. Two of these are ideally located for intercept

operations, but A's air traffic control radar is at the poorly positioned facility. Thus this radar cannot provide continuous coverage of the most likely route country B's Fitters would follow during an attack on the strategic mineral production facilities. The internal situation in country A is stable, and its paramilitary forces are capable of providing adequate internal security.

The TACS application for this scenario will be developed using the principles established in this chapter and following the order shown in the checklist in table 2. The *objective of the contingency* is to deter aggression by country B and, if necessary, defend country A from the air threat posed by country B. Rules of engagement require tight control of aircraft to ensure proper intercept. In terms of *scope*, only one type of operational aircraft is to be controlled, and a limited number of hostile aircraft have to be tracked. Mission timing requires that the control element be on scene with the fighter aircraft, and prolonged mission duration requires sustainability.

As to C^3 *functions*, this operation is exclusively an Air Force show. Thus command relationships are uncomplicated; however, out-of-theater support and guidance will be provided. The role of the TACS will be to plan and direct area air defense. Responsibilities will include air tasking order development and execution, threat monitoring and attack warning, airspace control, and direction of area air defense.

The *operating environment* is relatively secure. Intelligence indicates little or no enemy C^3CM capability. Since country A has a stable internal political situation and adequate security, only country B's air force threatens the F-15s and the TACS elements. Facilities available at the deployment sites include good lodging, water, and power. However, neither of the airfields to be used has radar. In addition, the airfields are sufficiently far apart and the area of the air defense zone of such a size that two radar sites are required for ground-based coverage and airspace management. For the next 45 days good flying weather is expected; after that thunderstorms and general rainy conditions are likely for at least three months.

Analysis of *security* concerns indicates that B lacks sophisticated ECM and real-time communications intelligence collection capability. Surprise is not a major factor in the operation.

TACS resource selection for the mission based on the available information is as follows:

- Three AWACS each with an airborne command element embarked to arrive as part of the deterrent force to provide 24-hour coverage of the contingency area. The air task force commander will be part of the initial ACE team.[9]
- Two forward air control posts will follow as rapidly as possible to provide ground-based surveillance and ground controlled intercept (GCI) for the contingency area. The FACPs will have enough personnel to conduct 24-hour operations, and each will be equipped with a modular control equipment operations module that will replace the AWACS as the primary elements for air surveillance, warning, and GCI.[10] AWACS will then be used

to extend radar coverage and provide launch-on-warning support for the ground-based units.[11]

One MTACC shelter will be deployed. The air task force commander will move his flag to the MTACC as soon as communications between the deployed elements are established. The MTACC will be staffed to provide the air task force command round-the-clock air defense, fighter operations, intelligence, logistics, and weather expertise. The MTACC will generate the daily ATO and direct air operations. It will be supported from home garrison with full air component and national capabilities emphasizing fighter operations, intelligence (to include attack warning, if possible), logistics, and weather data. For example, ATO and fighter employment recommendations will be provided by home garrison for the consideration of the air task force commander.[12]

The TACS application should be continuously reviewed for suitability, feasibility, and acceptability. The proposed TACS is a relatively simple answer for a straightforward operation. Despite its simplicity, this tailored TACS provides the air task force commander flexibility to control air assets in a variety of conditions.

Scenario 2: Operations to Restore Order in Support of Ground Forces

Country A is located near a strategic sea line of communications deemed vital to US security. Country A is in a tropical region with daily thunderstorms and lush vegetation. It has been a major recipient of US security assistance and has developed a fledgling air force (mostly A-37s) supported by an excellent radar system (TPS-43s predominate) with a command center equivalent to a control and reporting center. It has a small light-infantry force.

In country B, country A's neighbor, a leftist regime has been in power since a military coup five years ago. However, a rebel movement against country B has been operating from within country A from two remote border valleys. These valleys are in the region's highlands and are separated by a mountain range. Country B's military is comprised of a well-equipped army (twice the size of A's) and a small air force of transport aircraft, helicopters, and 12 newly arrived Chinese Fantan attack aircraft.

In recent weeks, country B has conducted small but frequent cross-border raids against rebel positions. The rebels have begun a gradual retreat into country A's interior, and country B is showing an intent to continue its pursuit up both valleys. Country A has responded by asking for US intervention and has offered to make facilities and equipment available to US forces.

US national command authorities have decided to deploy the 82d Airborne Division to the region, accompanied by two squadrons of A-10 attack aircraft for CAS and a squadron of F-16s for air defense and interdiction. An OV-10 unit is located in an adjacent country (country C) and can be

deployed if needed. US rules of engagement call for restrained use of force and allow cross-border interdiction only within 10 nautical miles of the international border. No offensive counterair or strategic offensive action is permitted within country B. Because the situation is deteriorating, the task force must deploy within 24 hours. Anticipated duration of the mission is 45 days with a transition period of up to 60 additional days during which time UN peacekeeping forces will take up positions.

The *objective* of the contingency is to restore order and then to turn the situation over to an international peacekeeping force as rapidly as possible. The Air Force will support the 82d Airborne, which will be positioned between the rebels and country B's forces in both highland valleys. In terms of *scope*, although the number of aircraft requiring control is limited, they are of different types and will perform different roles—the A-10s in close air support, the F-16s in counterair and possibly air interdiction.

For C^3 *functions*, the joint task force is under the 82d Airborne commander. The air component commander is a USAF numbered air force director of operations. The role of the TACS is to provide airspace management and air defense control, to plan and control CAS and air interdiction missions as required, to monitor threat activities, and to provide attack warning. It will also provide airspace management for country A and will coordinate all supporting airlift.

Analysis of the operating environment indicates the threat to US air assets comes primarily from country B's infantry, which has a few infrared-guided surface-to-air missiles, optical antiaircraft artillery, and the Fantan aircraft. There will be little or no threat to the TACS once US ground and air units are in place. The enemy has no C^3CM capability. Weather can be detrimental to flight activity since thunderstorms often cover the contested area. Acquisition of ground targets, especially infantry, from the air is difficult because of the lush vegetation. The political environment is supportive of US efforts; however, the rebel threat is creating a large refugee problem which could destabilize the situation. At present, the host government can provide law and order. Host facilities offered include the TPS-43 radars and a command center roughly equivalent to a control and reporting center. The radars provide coverage of all of the contested area, including the Fantan airfield in country B. Surprise is not a *security* requirement, and country A has imposed no deployment or employment constraints.

TACS resource selection based upon the available information is as follows:

- Tactical air control parties will be deployed with US ground forces and with host-country light infantry (if committed). In addition, because of the lush vegetation, the OV-10 unit in country C will be positioned to provide airborne forward air control to assist airlift liaison officers with target identification and terminal attack control.
- An ABCCC will deploy to serve as an ASOC for the initial employment of forces. Once the division's tactical operations center is established, its

air element will be upgraded with ASOC personnel and communications capability to serve as a downsized ASOC to control CAS. Once the downsized ASOC is established, the ABCCC will be used primarily for communications relay and to assist the airborne forward air controllers (AFAC).

- Three AWACS will deploy, with an airborne command element, and provide airspace command and control and threat warning for USAF assets to and from target areas. As soon as possible, a CRC with US weapons controllers will be established. It will assume airspace and GCI responsibility from the AWACS and make maximum use of host-nation radar and communications capabilities. AWACS will then serve as a radar extender and battle management backup for the air defense and warning effort.
- Because of the greater complexity of the mission compared to the first scenario, a larger TACC staff is required. Two MTACC shelters will deploy and establish communications with subordinate TACS elements and the home garrison. The TACC will include required support personnel and fighter duty officers with counterair, interdiction, and CAS expertise. It will also include weapons controllers and intelligence personnel with targeteering and weaponeering expertise. In addition, the TACC will have BCE and SAR representatives, and airlift duty officers to coordinate airlift. The JFACC will establish his flag at the TACC. The TACC will generate the daily ATO and direct air operations. It will be supported from home garrison with full air component and national capabilities with emphasis on fighter operations, intelligence (to include attack warning, if possible), and logistics and weather expertise.

The above application should be continuously *reviewed* for suitability, feasibility, and acceptability. This application provides the JFACC the flexibility to control air assets in a variety of conditions.

Scenario 3: Recovery Operation

A group of US students has been taken hostage by a radical group with consent of country A's government and are being held in a university field house located within the country's interior. The United States has recently broken off relations with country A because of its links with terrorists and the threats it has made against country B, a US friend. The political climate in the region is volatile.

Country A is located in a desert climate. It has a modern air force to include Fulcrum and Mirage aircraft located at two airfields near the university. It has good early warning radar coverage, but several small gaps exist in low-altitude coverage. It has an electronic jamming capability. US secret meetings with country B's government reveal sympathy for the students' plight, and B has offered the use of a remote airfield near its border with country A. Moreover, country B will permit overflight of its borders if plausible denial of cooperation can be maintained.

The NCA have decided to conduct a recovery operation within a week to free the hostages. Suppression of enemy air defenses and offensive counterair are authorized. The rescue will be carried out by special operations forces (SOF) supported by Air Force assets. The SOF will provide helicopters and MC-130, AC-130, and tanker aircraft. Conventional forces include F-15Es, F-15Cs, and F-4Gs and AWACS, ABCCC, EC-130, RC-135, and tanker support.

The concept of operations calls for SOF air assets to penetrate country A's airspace and deliver Ranger and Delta Force personnel to the field house. AC-130s will provide close air support. Conventional air will conduct offensive counterair operations against Mirage and Fulcrum aircraft on the ground, degrade early warning and GCI systems, and intercept hostile aircraft pursuing the rescue forces. The attack on enemy airfields will be timed to commence upon receipt of a "go" decision made as the rescue team crosses a "go/no-go" decision point on its approach to the field house. Radio relay is required to coordinate attacks.

The *objective* of the operation is to free the hostages. Because of the threat from country A's defensive counterair capability, the rules of engagement allow suppression of enemy counterair capability including early warning/ground control intercept assets.

In terms of contingency *scope*, the required types and numbers of aircraft are large, and mission coordination requirements are relatively complex. Mission timing is short with all TACS assets required at the point of mission execution. Duration will be a total of four hours with one and one-half hours in hostile country. A United States Special Operations Command general is the JTF commander and a USAF numbered air force director of operations has been appointed as air component commander. SOF air assets will coordinate with conventional forces through SOF liaison personnel.

C^3 *functions* of the TACS are to provide warning if country A detects the rescue force, provide a platform from which the JTF commander can coordinate activities, and relay threat warnings and go/no-go decisions. Finally, the TACS will direct intercept of any aircraft posing a threat to the rescue force.

The major threat in the *operating environment*, for both the rescue team and strike aircraft is country A's sophisticated air defense aircraft. Airborne TACS assets are also vulnerable to these aircraft. Country A has an electronic jamming capability and thus can disrupt TACS communications. Weather is clear and not likely to adversely affect the mission. The political climate in the region is volatile. Facilities for pre-positioning are available for SOF, but there is not enough hangar space to hide airborne TACS elements. *Security* is a must to maintain surprise and prevent disclosure of country B's support.

TACS resource selection based upon the available information is as follows:

• Airborne elements of the TACS will be used for most of the control functions of this operation because of the constraints imposed by the mission's rapid and precise timing, the short duration, the lack of ground facilities, and the requirement for security. An ABCCC will be command center for the JTF, serving as the central hub of the mission to relay threat and mission execution data. An RC-135 will monitor the threat and provide real-time special intelligence warning to the task force.

• An AWACS will direct the counterair effort to cover the rescue force. It will work closely with the RC-135 to pass real-time sanitized threat information to the fighter force. It will coordinate egress air refueling missions as required. An air liaison officer assigned to the Rangers will deploy with the rescue team to provide target identification and to direct fire from the AC-130.

The plan should be *reviewed* for suitability, feasibility, and acceptability. It is as simple an application as possible to meet a complex mission. It provides the JTF commander flexibility in contingency execution.

Conclusion

Future employments of air power will likely occur as parts of tailored forces designed for application in specific contingencies. If air power is to be employed properly, it must be planned and integrated. Integrated air power provides the joint task force commander with essential capabilities to carry out contingency operations. The principles provided are not ends in themselves but, as shown in the application section, are means to assist the planner in tailoring the TACS for the contingency at hand.

Notes

1. Brig Gen Kenneth A. Minihan, USAF, interview with author at Langley Air Force Base (AFB), Va., 25 July 1990.

2. Lt Gen Peter T. Kempf, USAF, interview with author at Bergstrom AFB, Tex., 2 August 1990.

3. Philip A. Crowl, "The Strategist's Short Catechism: Six Questions without Answers," in *The Harmon Memorial Lectures in Military History, 1959–1987*, ed. Harry R. Borowski (Washington, D.C.: Office of Air Force History, 1988), 380.

4. Donn A. Starry, "The Principles of War," *Military Review* 61, no. 9 (September 1981): 3.

5. Ibid.

6. Conversely, TACS deployment could be used as a political signal to demonstrate US resolve.

7. Crowl, 82.

8. If the composite wing concept is implemented, it would be a likely choice for such a contingency response.

9. TACR 55-3, *Airborne Warning and Control System*, 6 October 1986, passim; and TACR 55-54, *Airborne Elements of the Tactical Air Control System (AETACS)*, 30 October 1987, passim.

10. If not MCE outfitted, a downsized CRC would be deployed.

11. TACR 55-45, *Tactical Air Force Headquarters and the Tactical Air Control Center*, 8 April 1988, 5-2.

12. TAC Concept of Operations, "Modular Tactical Air Control Center," Headquarters TAC/DOY, Langley AFB, Va., June 1990, 8.

Chapter 4

Problems and Recommendations

In the course of researching this paper, it became apparent that several issues need to be resolved if the Air Force is to develop a capability to field a tailored tactical air control system to employ air power during smaller-scale contingencies. They are: overspecialization of personnel; lack of a dedicated space element within the TACS; orientation toward a large-block mobility structure; lack of assured communications/automation between remotely deployed MTACC elements and sister MTACC elements in garrison and between MTACC elements and composite wings and standard wing operations centers; lack of a vigorous exercise and evaluation program emphasizing short-notice deployment of a tailored TACS; and lack of current doctrine in regulations focused on tailoring C^2 for contingencies.

Overspecialization

The Air Force has become a force of specialists, but "just because you are a good fighter pilot does not make you a good fighter duty officer in the TACS."[1] This lament of a Tactical Air Command numbered air force commander is echoed by numerous senior officers on the TAC staff. Similarly, many of the faculty members of the Air War College believe that today's officers are highly competent in their individual specialties but lack a broad understanding of air power employment and the operational art.[2] As the tactical air control system loses the last of a generation of airmen who, like their predecessors, had the opportunity to be operationally qualified in several different aircraft in a variety of aerospace roles and missions, it will have to rely on individuals with experience in only one weapon system and little or no career broadening. This condition holds true not only for the rated force but for combat support as well. In intelligence, for instance, specialists are the norm rather than the exception. Air intelligence officers are unlikely to gain experience in other intelligence disciplines (e.g., electronic intelligence) and are unlikely to have the critical skills and knowledge associated with disciplines outside their specialization. Likewise, officers are not likely to be proficient in target selection and weaponeering unless they enter the target intelligence career track. This specialization makes resource selection for a downsized TACS difficult. In a small, semiautonomous deployment, the limited number of personnel may be required to accomplish more than one function (unlike

Operation Desert Shield/Desert Storm where a large TACS was deployed to handle the theater-level conflict).

An answer lies in the development of the informed generalist.[3] A cadre of individuals must be developed who not only understand tactical employment of specific weapon systems but also understand at least the basics of aerospace power employment. These individuals must have sufficient practical experience to be able to find highly specialized information. Developing informed generalists becomes increasingly difficult as the Air Force enters an era of fiscal constraints in which the peacetime cost savings of specialization are likely to be emphasized. Yet the importance of such generalists is also increasing because TACS personnel are more likely to be deployed in smaller numbers and required to handle multiple tasks. The needed generalists can be developed through a combination of education and experience. The following are a series of specific recommendations to help alleviate the problem of overspecialization.

Professional Reading Program

Tactical Air Command should develop a professional reading program (PRP) modeled after the one instituted by Gen Alfred M. Gray, Jr., in the United States Marine Corps.[4] TAC's PRP should be designed to complement the Air Force's present professional military education program with more specific coverage of employment of tactical air power. To paraphrase General Gray's concept, such a program should help tactical airmen develop as students and practitioners of the operational art of air power employment.[5]

Lists of books appropriate by grade should be developed and standards established. Such standards could set a minimum and ideal number of books to be read annually, chosen either by the individual, the unit commander, or the supervisor.[6] TAC should implement the program through its command line with unit commanders and supervisors providing time for compliance. The program should be dynamic with annual additions and deletions.[7] The PRP should not displace other avenues for professional growth. For example, it should supplement, not replace, other professional reading, especially in such periodicals as *Airpower Journal*.[8]

The purpose of such a program is not to heap yet another burden on the back of an already highly tasked force, but to improve the force's ability to employ air power. To quote General Gray:

> Success in battle depends on many things, some of which we will not fully control. However, the state of preparedness of our [airmen] (physical, intellectual, psychological, operational) is in our hands. The study of our profession through the selected readings will assist each [airman's] efforts to achieve operational competence and to better understand the nature of our calling as leaders of [airmen].[9]

Broadened Experience

In addition to instituting a professional reading program, TAC should attempt to broaden the experience of TACS personnel. Personnel should

be rotated within the TACS structure to increase their knowledge of the functions and procedures of related positions. For example, fighter duty officers should understand reconnaissance duty officer procedures; air order of battle analysts should work with target officers to understand target selection and weaponeering procedures.

Cross-Training Program

Individuals outside the TACS should be made "smarter" about command and control. This requirement could be met by TAC development of what could be called a "cross-training" program. Such a program would take individuals from fighter wings and assign them to TACS elements as augmentees or observers during exercises. The purpose would be to develop an understanding of air campaign planning and the air tasking order development and execution process. The participants could then carry this knowledge back to the wings to better educate other TAC operators and combat support personnel on how they fit in the larger picture of the air war. The cross-training program does not have to be limited to junior individuals. It would also be applicable to senior leaders who have little or no TACS experience. In addition, the program should be open to sister-service and allied airmen who would likely be partners in a future conflict. Such sharing would improve interoperability with C^2 counterparts and thus enhance joint and combined operations.

Space Element

Space expertise is lacking in the TACS. The deployed TACS, however, is becoming increasingly reliant on space-based assets to accomplish its mission. Space assets provide force enhancement for the TACS in the form of weather, intelligence, navigation, and communications support. In addition, force application from space could become a reality. TACS operators do not appear to understand space capabilities fully.[10] Moreover, no clear doctrine exists regarding incorporation of space-based capabilities in JTF organization or structure. The following recommendations should help alleviate problems caused by the lack of space presence in the TACS.

Space Liaison Officer

The position of space liaison officer should be established on the ACC/JFACC staff to interpret the space situation and space-related data. This officer would not only be the one point of contact on space issues and capabilities for the JFACC but also would provide Air Force Space Command (in its role as supporting command) with on-scene updates on contingency operations. Such liaison would keep the JFACC better informed of space activities that could affect his operations and would allow the space commander to better anticipate JFACC needs and thus increase the

likelihood of timely support. In addition, a small space liaison element (a group of individuals with specific space expertise) should be placed in the TACC to assist in situation monitoring and warning and mission planning and execution.

Doctrine

Clear doctrinal relationships must be established, and agreed to by all parties, as to how space and air-breathing forces are to be integrated. Such integration will become especially important when an offensive space control or a space force application capability is developed. Should a space component commander be established under a war-fighting CINC/JTF commander or should the joint force air component commander be the joint aerospace component commander? Who should make the final decision as to whether an enemy satellite should be intercepted? Who will nominate and approve terrestrial targets for interdiction from a space-based system? These and other questions must be debated and resolved to ensure unity of aerospace effort in future combat.[11]

Developing space technologies will allow airmen to exploit the aerospace environment more fully. What is needed now is to ensure unity of effort in the conduct of aerospace affairs. For the foreseeable future, unity of effort can best be accomplished through the ACC/JFACC's tactical air control system, thus the TACS should incorporate space expertise.

Large-Block Mobility Structure

The present mobility structure in the TACS is centered on large-block unit type codes (UTC) that inhibit TACS tailoring. If Gen John W. Foss and many others are correct in thinking the future of US military operations will involve tailored forces, a mobility structure that facilitates rapid tailoring is required.[12] "[One must be] able to respond with the right package in a relatively short period of time to meet [the] threat."[13] Moreover, in the case of the TACS, one must be able to control that right package. As with many other systems, planning calls for moving the TACS as a block. Although such planning is no doubt valid for fighting a theater-level war, it is inefficient for rapidly customizing the TACS for a smaller-scale contingency. The following recommendations should help alleviate mobility problems caused by the present large-block orientation.

Manpower Force Element Listing for Modular Tactical Air Control Center

A small, flexible UTC structure should be developed to better focus on tailored TACS applications. The new Modular Tactical Air Control Center's UTCs should be designed to allow maximum flexibility in rapid personnel selection while facilitating airlift planning requirements. UTCs for the

MTACC should be designed around the smallest deployable structure (one or two shelters), and the only predesignation should be for maintenance personnel. Operator positions should be identified and allotted, but individual specialties should not be predesignated. Only after contingency planning has been completed and specific TACS applications have been determined should TACS operators be designated for deployment. For example, a TACS deployment to support an exclusively defensive counterair operation would take only specialists associated with that mission's requirements. The modified TACS would not need and would not deploy specialists who deal exclusively with close air support, strategic interdiction, or special operations.

Manpower Force Element Listing for Subordinate Elements

Similar UTC downsizing should be accomplished in subordinate TACS elements. For example, for a contingency requiring limited close air support for a division-sized deployment, a capability should be developed to select critical air support operations center capabilities and combine them with division tactical air control parties to provide a "downsized ASOC" to support the ground commander. The same reasoning holds true for area air defense. A forward air control post could be upgraded with the automation and communications capability of MCE and perform as a limited control and reporting center. In other words, the approach should be to use capabilities and personnel creatively to allow downsizing for rapid deployment while retaining a C^2 capability that meets the ACC/JFACC's requirements. Such results can only be accomplished through structuring of small, flexible UTCs that can be easily used for contingency response.

Communications and Automation Capability

One of the underlying concepts of this paper is that command and control for contingencies can be enhanced through technical and, in some cases, tactical support from outside the contingency operations area. To provide this support requires assured communication links between the separate operating locations and an ability to exchange critical data rapidly.

Split Tactical Air Control Center

As described in its concept of operations, one of the most important configurations of the Modular Tactical Air Control Center is deployment of one or two shelters with the bulk of the TACC functioning from home garrison.[14] This concept allows the ACC/JFACC to deploy a relatively small control organization that could provide guidance and the current situation to the home-station elements, where detailed planning, operations, and intelligence activities would be conducted. Air tasking order support and

detailed operations and intelligence information could then be passed back to the deployed unit for the commander's decision.[15] To best support the ACC/JFACC, deployed or separately operating TACS elements (e.g., a 3:1 shelter-equipped ASOC) should be able to communicate with a home-garrisoned TACC or senior TACS elements as if collocated.

A program to improve existing satellite communication capabilities to allow data exchanges between MTACC sites must receive high priority. Software must be developed to facilitate data exchanges between remote operating locations. The result should be a deployable control element able to access the information necessary to employ air power in a contingency.

Composite Wing

The composite wing concept is gaining momentum under the leadership of Air Force Chief of Staff Gen Merrill A. McPeak.[16] The concept behind the composite wing is that self-contained wings should plan and execute assigned missions with higher-level guidance limited to mission-type orders. This concept will be suited for independent operations requiring no more than a division-equivalent-sized task force and would allow such operations in environments where defenses are not very sophisticated.[17] The nerve center of the task force would be an expanded wing operations center. The operations staff could be organized like a TACC and could have a capability greater than a normal WOC but less than a TACC. In effect this operations staff could function as a mini-TACC. It would have to be equipped with an MTACC shelter and appropriate communications gear to tie it to a full-up, home-garrison TACC and to communicate with subordinate TACS elements (e.g., FACP, AWACS, ABCCC). The composite wing staff could be augmented if the scale of an operation is beyond the scope of the wing's manning.

Standard Wing Operations Center

In addition to enhancing MTACC capability through remoted automation, automation capability must be aggressively upgraded under the Contingency TACS Automated Planning System program to allow data exchange between a deployed TACC and the WOC. Not only would the WOC then be able to access critical operations, intelligence, and logistics data, but such data exchange would also allow the TACC to put out better ATOs, faster.[18]

Exercise and Evaluation Program

TACC exercises should emphasize short-notice response and tailored applications. Currently, the tactical air control center is exercised during such large-scale deployments as Blue Flag and Gallant Knight. During these exercises, the bulk of the TACC is deployed to simulate theater-level conflict; but, unlike the case for some other elements of the TACS, there is

no Coronet Lightning program for the TACC. (Coronet Lightning is a test of a unit's ability to respond rapidly to a short-notice deployment tasking.) In addition, there is no rigorous evaluation program. Current inspections test the tactical air control center squadron/tactical intelligence squadron (TACCS/TIS)—the core elements of the deployed TACC—from initial response up to equipment generation. The last time a TACC was inspected for combat employment was in conjunction with United States Readiness Command exercise Border Star 85.[19] The following recommendations could enhance the TACS exercise and evaluation program.

Short-Notice Exercises

A short-notice exercise program should be developed that requires a tailored TACC response. This program should be part of the Coronet Lightning program and should be scenario driven to result in a specific TACS application. Units would be tasked for initial response through equipment regeneration. The purpose of exercises would be to prepare units for short-notice, crisis response.

Operational Readiness Inspections

The Tactical Air Command Inspector General should conduct operational readiness inspections to test and evaluate initial response through equipment regeneration to ensure TACCS/TIS capability to respond to contingency tasking. Currently, these squadrons are inspected only for phase one initial response with inspection termination at equipment generation and simulated airlift.

Doctrine in Tactical Air Control System Regulations

TACS-related regulations should incorporate joint doctrine. In addition, TACS regulations must provide guidelines to facilitate downsizing for lower-level contingency response.

TAC's 55-series regulations should provide clear guidance on how the TACS should incorporate all the air capabilities used in a contingency. These regulations must clarify and strongly develop the requirement for an ACC/JFACC.[20]

TACS regulations must clarify roles and functions of the tactical air control system in regard to sister services, allies, and special capabilities (i.e., special operations, space, and national intelligence agencies). For example, with the advent of US Special Operations Command and a SOFACC, the relationship of special operations forces to the ACC/JFACC and assignments within the TACS have changed. A SOF liaison element, equivalent to the battlefield coordination element or naval and amphibious liaison element in the TACC, must be clarified within the regulations.

Moreover, regulations should provide guidance on the relationship of SOF to other assigned air assets.

Finally, TAC should incorporate doctrinal guidance in the 55-series regulations to facilitate TACS tailoring and crisis response. This guidance should include principles, such as those provided in this paper, which underlie the tailoring process. The regulations also should contain scenario-driven examples of TACS applications to help planners respond rapidly to a short-notice deployment.

Conclusion

The United States faces a world that is no longer characterized by the dominating threat posed by the Soviet Union in the cold war. Instead, less predictable but still dangerous security situations challenge national well-being. The developing world is enduring more than 25 civil and international conflicts per year, and many developing nations either possess or are developing military arsenals of formidable size and sophistication. The threat to US security interests and those of friends and allies is on the rise. Because of these growing challenges, the likelihood of US military involvement is high, but that involvement is also likely to require differing and tailored responses to meet the requirements of small-scale contingencies.

Air power, because of its unique characteristics of speed, range, flexibility, precision, and lethality, can underwrite much of US security aims. The key to exploiting the capabilities inherent in air power lies in proper command and control. The tactical air control system is unique in its ability to provide a joint force air commander, through the ACC/JFACC, with centralized control/decentralized execution. Such functions are essential if air power is to function properly in a contingency, and the TACS, like the forces it controls, must be tailored to meet the needs of the situation at hand.

Notes

1. Lt Gen Peter T. Kempf, USAF, interview with author at Bergstrom AFB, Tex., 2 August 1990. While JFACC during Operation Just Cause, General Kempf observed a lack of air power employment expertise in otherwise capable fighter pilots assigned control duty.
2. Col Kent E. Harbaugh, USAF, chairman, Department of Warfare Studies, Air War College, interview with author at Maxwell AFB, Ala., 30 November 1990.
3. Dr Grant T. Hammond, professor at Air War College, interview with author at Maxwell AFB, Ala., 29 November 1990.
4. Gen Alfred M. Gray, Jr., commandant, USMC, Annual Revision to the Marine Corps Professional Reading Program, commandant's message, 7 August 1990, passim.
5. Ibid.
6. Ibid., 1.
7. Ibid., 6.
8. Ibid., 2.
9. Ibid., 6.

10. Because of the lack of user knowledge about space and space operators' lack of appreciation of ACC requirements, Lt Gen Thomas S. Moorman, Jr., commander, USAF Space Command, has developed a space applications division.

11. Discussion with Maj Gen Charles D. Link, USAF, commandant, Air War College, Maxwell AFB, Ala., 4 December 1990.

12. Gen John W. Foss, USA, "The Future of the Army," *Army Times*, 5 March 1990, 17.

13. Ibid.

14. TAC Concept of Operations, "Modular Tactical Air Control Center," Headquarters TAC/DOY, Langley AFB, Va., June 1990, 8.

15. Ibid.

16. Gen Merrill A. McPeak, USAF, "For the Composite Wing," *Airpower Journal* 3, vol. 4 (Fall 1990): 4–12.

17. Lt Col Thomas, USAF, Headquarters TAC/AirLand Programs Office, Langley AFB, Va., point paper, "Comments on Composite Wings and the Contingency TACS," 25 February 1991.

18. Col Louis G. Horn, USAF, TAC assistant deputy director for intelligence applications, Tactical Air Combat Operations Staff, to Headquarters TAC/SPJ, letter, subject: Review of Air University Research Fellow Program Draft Paper, 22 February 1991.

19. The last mission capability inspection report (project number: T5-1012A) on a TACCS/TIS covered 20–25 March 1985 for units of the 602d Tactical Air Control Wing.

20. Lt Col Mick Luers, USAF, Headquarters USAF/XOXWD, point paper, "Joint Force Air Component Commander (JFACC)," April 1990.

Glossary

AAGS	Army Air Ground System
ABCCC	airborne battlefield command and control center
ACC	air component commander
ACE	airborne command element
AETACS	airborne elements of the tactical air control system
AFAC	airborne forward air controller
ALCC	airlift control center
ALCE	airlift control element
ASOC	air support operations center
ATDL	Adaptive Targeting Data Link
ATO	air tasking order
AWACS	airborne warning and control system
BAI	battlefield air interdiction
BCE	battlefield coordination element
CAS	close air support
C^2	command and control
C^3	command, control, and communications
C^3CM	command, control, and communications countermeasures
CEDO	communications-electronics duty officer
CID	combat intelligence division
COMALF	commander, airlift forces
CRC	control and reporting center
CRP	control and reporting post
CTAPS	Contingency TACS Automated Planning System
DDO	defensive duty officer

DSCS	Defense Satellite Communications System
ENSCD	enemy situation correlation division
FAC	forward air controller
FACP	forward air control post
FID	foreign internal defense
GMF SATCOM	Ground Mobile Force Satellite Communications
HF	high frequency
JFACC	joint force air component commander
JTF	joint task force
JTIDS	Joint Tactical Information Distribution System
LIC	low intensity conflict
MCE	modular control equipment
MILSTAR	Military Strategic and Tactical Relay Satellite
MTACC	Modular Tactical Air Control Center
NALE	Navy and amphibious liaison element
NCA	National Command Authorities
NEO	noncombatant evacuation operations
OM	operations module
PRP	professional reading program
ROE	rules of engagement
SADO	senior air defense officer
SAR	search and rescue
SEAD	suppression of enemy air defenses
SODO	senior operations duty officer
SOF	special operations forces
SOFACC	special operations forces' air component commander
SOFLE	special operations forces liaison element

TAC	Tactical Air Command
TACC	tactical air control center
TACCS	tactical air control center squadron
TACP	tactical air control party
TACS	tactical air control system
TADIL	Tactical Digital Information Link
TIS	tactical intelligence squadron
USAF	United States Air Force
UTC	unit type codes
WOC	wing operations center